Water Heater

Thermo Top Evo Parking Heater

E1
00 0258

Installation Documentation
Mitsubishi Outlander

Validity

Manufacturer	Model	Type	Model year	EG BE No. / ABE
Mitsubishi	Outlander	CWO (GF0)	From model year 2013	e1 * 2001 / 116 * 0406 * ...
Mitsubishi	Outlander PHEV	CWO (GG0)	From model year 2014	e1 * 2001 / 116 * 0406 * ...

Motorisation	Fuel	Emission standard	Transmission type	Output in kW	Displacement in cm³	Engine code
2.0 MIVEC	Petrol	Euro 5b	SG	110	1998	4J11
2.0 MIVEC	Petrol	Euro 5b	AG	110	1998	4J11
2.0 MIVEC PHEV	Petrol	Euro 6	AG	89	1998	4B11
2.4 MIVEC PHEV	Petrol	Euro 6d-TEMP	AG	99	2360	4B12

SG = manual transmission
AG = automatic transmission

Verified equipment variants: Automatic air-conditioning
Front fog lights
Headlight washer system

Not verified: Passenger compartment monitoring

Exclusion: Electrical OE parking heater in case of ‘PLUS’ and ‘TOP’ equipment

Total installation time: approx. 8.5 hours

Note:

Only experts in high-voltage systems for vehicles should be authorised to carry out independent work on hybrid vehicles!
High-voltage systems must be taken out of operation, secured and reactivated according to the manufacturer's instructions!

Mitsubishi Outlander

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Necessary Components

- Basic delivery scope of Thermo Top Evo based on price list
- Installation kit for Mitsubishi Outlander MY 2013 / 2.0 PHEV MY 2013 / 2.4 PHEV MY 2018: **1323662C**
- Control element in accordance with price list and upon consultation with end customer
- In case of Telestart, indicator lamp in accordance with price list and in consultation with end customer

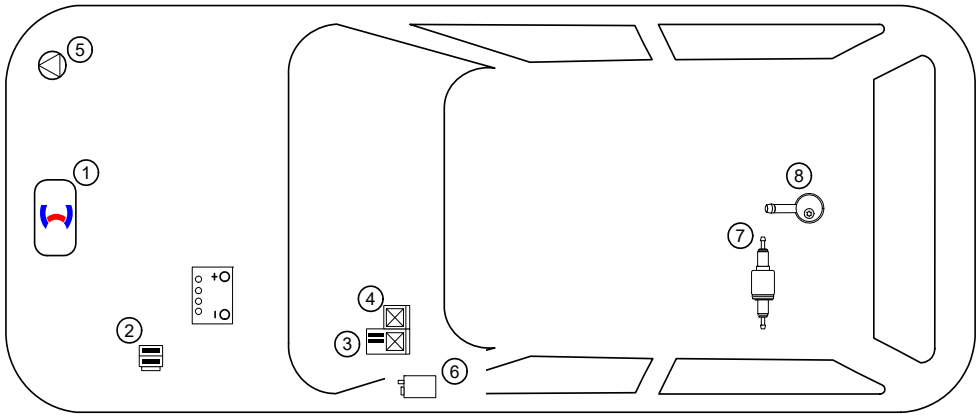
Installation instructions:

- Arrange for the vehicle to be delivered with the tank only about ¼ full.
- The installation location, in case of the MultiControl CAR Option, should be determined in coordination with the end customer!
- The installation location of the push button in case of Telestart or ThermoCall should be confirmed with the end customer.
- Depending on the space required and the vehicle manufacturer's instructions, we recommend the use of a vehicle battery with a higher electrical capacity.

Installation Overview

Legend:

1. Heater
2. Engine compartment fuse holder
3. Passenger compartment relay and fuse holder
4. PWM GW
5. Circulating pump
6. Telestart / ThermoCall receiver
7. Metering pump
8. FuelFix



Information on Total Installation Time

The total installation time includes the time needed for mounting and demounting the vehicle-specific components, the heater specific installation time and all other times required for the system integration and initial start-up of the heater.
The total installation time may vary for vehicle equipment other than provided.

Information on Operating and Installation Instructions

1 Important information (not complete)

1.1 Installation and repair

The improper installation or repair of Webasto heating and cooling systems can cause fire or the leakage of deadly carbon monoxide, leading to serious injury or death.

To install and repair Webasto heating and cooling systems you need to have completed a special company training course and have the appropriate technical documentation, special tools and special equipment.

Installation and repair may ONLY be carried out by persons trained and certified in a Webasto training course. NEVER try to install or repair Webasto heating or cooling systems if you have not completed a Webasto training course, you do not have the necessary technical skills and you do not have the technical documentation, tools and equipment available to ensure that you can complete the installation and repair work properly.

Only use genuine Webasto parts. See the Webasto air and water heaters accessories catalogue for this purpose.

1.2 Operation

To ensure safe operation, we recommend having the heater checked every two years by an authorised Webasto dealer, especially when used over a long period and/or under extreme environmental conditions.

Do not operate the heater in closed rooms due to the danger of poisoning and suffocation.

Always switch off the heater before refuelling.

The heater may only be used with the prescribed fuel diesel (DIN EN 590) or petrol (DIN EN 228).

The heater may not be cleaned with a high-pressure cleaner.

1.3 Please note

ALWAYS follow all Webasto installation and operating instructions and observe all warnings.

To become familiar with and understand all functions and properties of the heater, the operating instructions must be read carefully and observed at all times.

For proper, safe installation and repair work, the installation instructions with all warnings and safety information must be carefully read and observed at all times. Please always contact a workshop authorised by Webasto for all installation and repair work.

Important

Webasto shall assume no liability for defects, damage and injuries resulting from a failure to observe the installation, repair and operating instructions of the information contained in them.

This liability exclusion particularly applies to improper installations and repairs, installations and repairs by untrained persons or in the case of a failure to use genuine spare parts.

The liability due to culpable disregard to life, limb or health and due to damage or injuries caused by a wilful or reckless breach of duty remain unaffected, as does the obligatory product liability.

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties. Insulate loose wire ends and tie back. Connectors on electronic components must audibly snap into place during assembly.

Sharp edges should be fitted with rub protection. Spray unfinished body areas, e.g. drilled holes, with anti-corrosion wax (Tectyl 100K).

Observe the instructions and guidelines of the respective vehicle manufacturer for demounting and mounting vehicle specific components!

The initial start-up is to be executed with the Webasto Thermo Test Diagnosis.

When installing a programmable control module (e.g. a PWM Gateway), the corresponding settings must be checked or adjusted.

2 Statutory regulations governing installation

Guidelines	Thermo Top Evo
Heating Directive ECE R122	E1 00 0258
EMC Directive ECE R10	E1 04 5627

Note

The regulations of these guidelines are binding in the scope of the Directive 70/156/EEC and/or 2007/46/EC (for new vehicle models from 29/04/2009) and should also be observed in countries in which there are no special regulations.

Important

Failure to follow the installation instructions will result in the invalidation of the type approval for the heater and therefore invalidation of the general **homologation of the vehicle**.

Note

The heater is licensed in accordance with paragraph 19, section 3, No. 2b of the StVZO (German Road Traffic Licensing Authority).

2.1 Excerpt from ECE regulation 122 (heating system) paragraph 5 for the installation of the heater

Beginning of excerpt.

ANNEX VII

REQUIREMENTS FOR COMBUSTION HEATERS AND THEIR INSTALLATION

1. GENERAL REQUIREMENTS

1.7.1. A clearly visible tell-tale in the operator's field of view shall inform when the combustion heater is switched on or off.

2. VEHICLE INSTALLATION REQUIREMENTS

2.1. Scope

2.1.1. Subject to paragraph 2.1.2. combustion heaters shall be installed according to the requirements of this Annex.

2.1.2. Vehicles of category O having liquid fuel heaters are deemed to comply with the requirements of this Annex.

2.2. Positioning of heater

2.2.1. Body sections and any other components in the vicinity of the heater must be protected from excessive heat and the possibility of fuel or oil contamination.

2.2.2. The combustion heater shall not constitute a risk of fire, even in the case of overheating. This requirement shall be deemed to be fulfilled if the installation ensures an adequate distance to all parts and suitable ventilation, by the use of fire resistant materials or by the use of heat shields.

2.2.3. In the case of M2 and M3 vehicles, the heater must not be positioned in the passenger compartment. However, an installation in an effectively sealed envelope which also complies with the conditions in paragraph 2.2.2 may be used.

2.2.4. The label referred to in paragraph 1.4 or a duplicate, must be positioned so that it can be easily read when the heater is installed in the vehicle.

2.2.5. Every reasonable precaution should be taken in positioning the heater to minimise the risk of injury and damage to personal property.

2.3. Fuel supply

2.3.1. The fuel filler must not be situated in the passenger compartment and must be provided with an effective cap to prevent fuel spillage.

2.3.2. In the case of liquid fuel heaters, where a supply separate to that of the vehicle is provided, the type of fuel and its filler point must be clearly labelled.

2.3.3. A notice, indicating that the heater must be shut down before refuelling, must be affixed to the fuelling point. In addition a suitable instruction must be included in the manufacturer's operating manual.

2.4. Exhaust system

2.4.1. The exhaust outlet must be located so as to prevent emissions from entering the vehicle through ventilators, heated air inlets or opening windows.

2.5. Combustion air inlet

2.5.1. The air for the combustion chamber of the heater must not be drawn from the passenger compartment of the vehicle.

2.5.2. The air inlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

2.6. Heating air inlet

2.6.1. The heating air supply may be fresh or recirculated air and must be drawn from a clean area not likely to be contaminated by exhaust fumes emitted either by the propulsion engine, the combustion heater or any other vehicle source.

2.6.2. The inlet duct must be protected by mesh or other suitable means.

2.7. Heating air outlet

2.7.1. Any ducting used to route the hot air through the vehicle must be so positioned or protected that no injury or damage could be caused if it were to be touched.

2.7.2. The air outlet must be so positioned or guarded that blocking by rubbish or luggage is unlikely.

End of excerpt.

In multilingual versions the German language is binding.

Mitsubishi Outlander

Information on Validity

This installation documentation applies to Mitsubishi Outlander - vehicles - for validity, see page 1 - from model year 2013 and later, assuming technical modifications to the vehicle do not affect installation, any liability claims excluded. Depending on the vehicle version and equipment, modifications may be necessary during installation with respect to this installation documentation.

Vehicle and engine types, equipment variants and other specifications not listed in this installation documentation have not been tested. However, installation according to this installation documentation may be possible.

Technical Information

Special Tools
- Hose clamp pliers for auto-tightening hose clamps
- Hose clamp pliers for Clic hose clamps of type W
- Hose clamping pliers
- Automatic wire stripper, 0.2 - 6mm²
- Crimping pliers for male connector, 0.14 - 6mm²
- Crimping pliers for cable lug, 0.5 - 10mm²
- Crimping pliers for connector, 0.25 - 6mm²
- Torque wrench for 2.0 - 10 Nm
- Metric thread-setter kit
- Deep-hole marker
- Webasto Thermo Test Diagnosis with current software

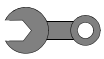
Dimensions
- All dimensions are in mm.

Tightening torque values
- Tightening torque values of 5x13 heater bolts and 5x11 heater stud bolts = 8Nm.
- Tightening torque value of 5x15 water connection piece retaining plate bolt = 7Nm.
- Tighten other bolt connections in accordance with manufacturer's instructions or in accordance with state-of-the-art-technology.

Explanatory Notes on Document

You will find an identification mark on the outside top right corner of the page in question to provide you with a quick overview of the individual working steps.

Mechanical System



Electrical System

Coolant Circuit

Combustion Air

Fuel

Exhaust Gas

Software

Special features are highlighted using the following symbols:

Specific risk of damage to components.

Specific risk due to electrical voltage.

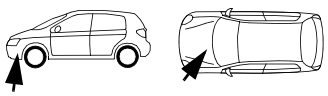
Specific risk of injury or fatal accidents.

Specific risk of fire or explosion.

Reference to the manufacturer's vehicle-specific documents or to the general installation instructions of Webasto components.

Reference to a special technical feature.

The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.



Tightening torque according to the manufacturer's vehicle-specific documents.

Preliminary Work

Vehicle

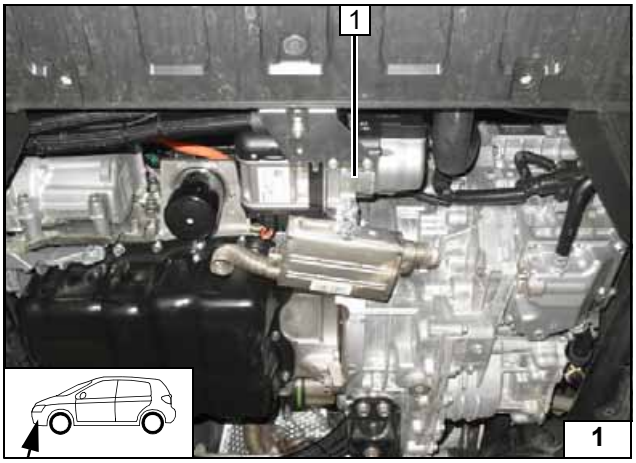
- Open the fuel tank cap.
- Ventilate the fuel tank.
- Close the fuel tank cap again.
- Depressurise the cooling system.
- Disconnect the battery.
- Deactivate the hybrid system according to the vehicle manufacturer's workshop manual.
- Remove the air filter completely, together with the intake hose.
- Drain off the coolant.
- Remove the front wheel arch liner in the engine compartment on the left (if present).
- Remove the underride protection.
- Remove the wheel on the right.
- Remove the lateral engine cover on the right side.
- Open the tank fitting service lid (except for 2.0 and 2.4 PHEV).
- Remove the footwell trim on the driver's and front passenger's sides.
- Remove the instrument panel trim on the driver's side.

Only carry out the following steps during the corresponding installation sequence:

- Dismantle the tank as per the manufacturer's instructions (only in case of 2.0 and 2.4 PHEV).

Heater

- Remove years that do not apply from the type and duplicate label.
- Attach the duplicate label (type label) visibly in the appropriate place in the engine compartment.



Heater Installation Location

1 Heater

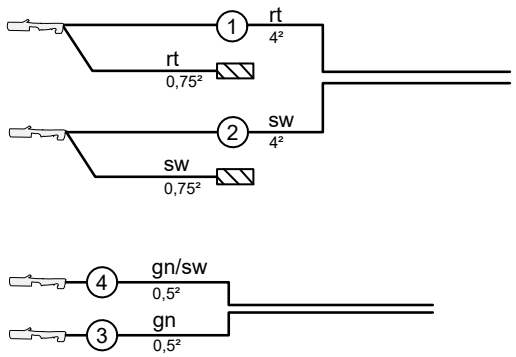
Installation location

Preparing Electrical System

Wire sections retain their numbering in the entire document.

Assigning wires

① Red (rt) wire of fan wiring harness
② Black (sw) wire of fan wiring harness
③ Green (gn) wire of PWM control system wiring harness
④ Green/black (gn/sw) wire of PWM control system wiring harness



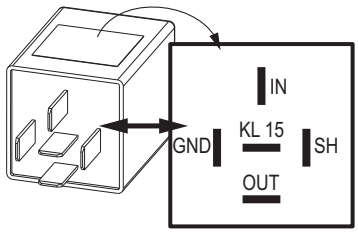
2

Check the PWM Gateway settings when starting up the heater and set to 1/3 of the fan capacity if necessary.

Settings:

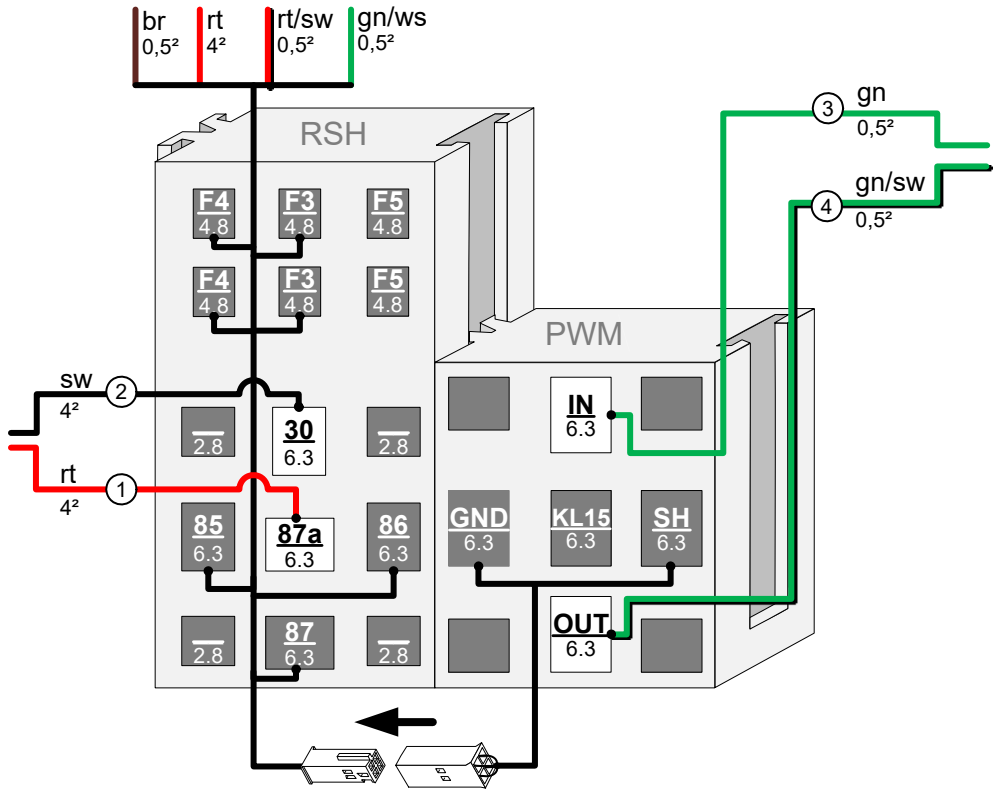
Duty cycle: 100% (DC)
Frequency: not relevant
Voltage: 4.2V
Function: High side

View of PWM-GW



3

Assembling passenger compartment relay and fuse holder and PWM GW socket / mounting wires



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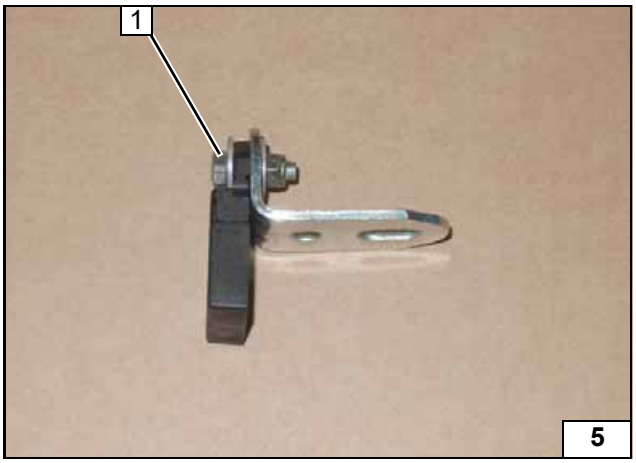


1 M5x16 bolt, large diameter washer, engine compartment fuse holder retaining plate, angle bracket, large diameter washer, nut

Installing angle bracket

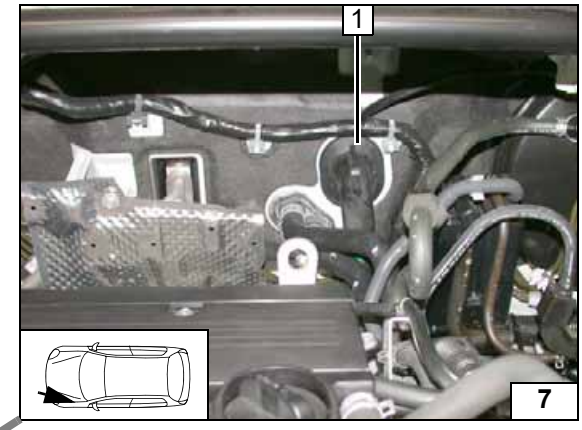
Electrical System of 2.0 MIVEC

Positive wire

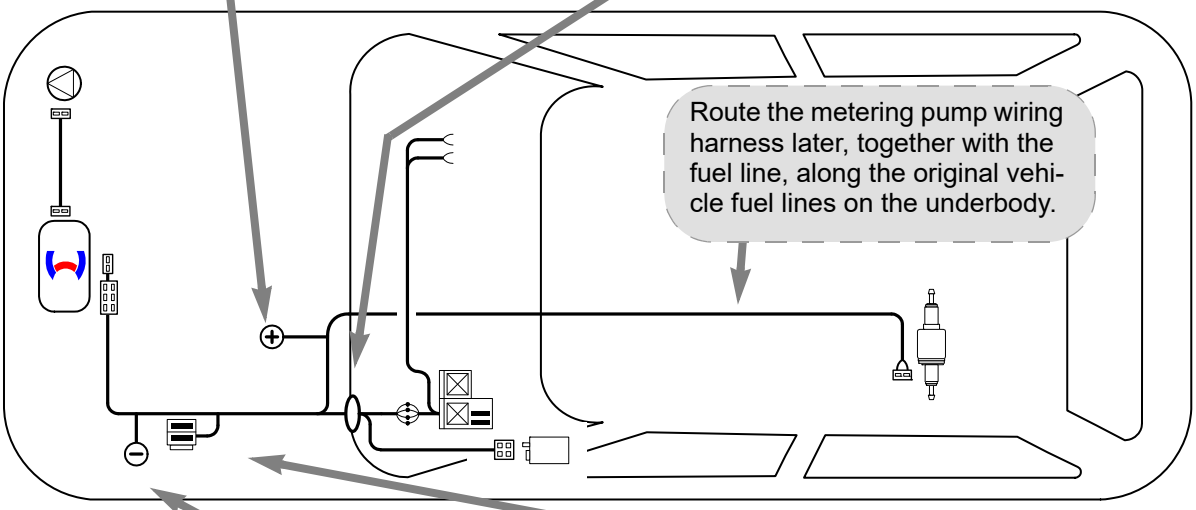
1 Positive wire
2 Female connector, housing on free socket of terminal 30+ (check if 30+ of positive battery terminal **3** fits.)
3 Positive battery terminal

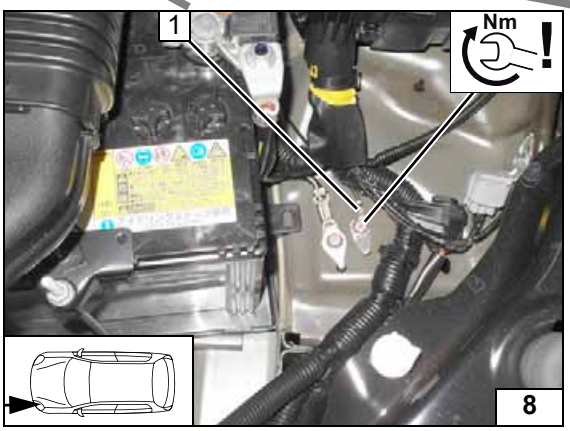
Wiring harness pass through

1 Protective rubber plug



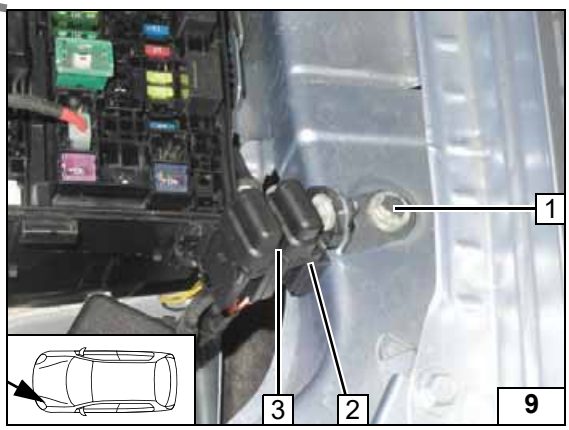
Wiring harness routing diagram





Earth wire

1 Earth wire on original vehicle earth support point



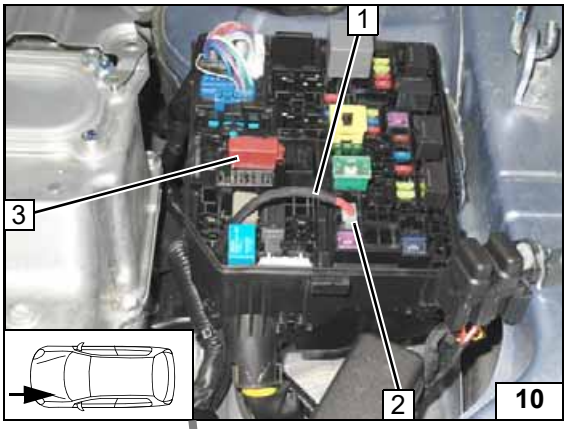
Engine compartment fuse holder

1 M6x20 bolt, large diameter washer, pre-mounted angle bracket, existing hole, flanged nut
2 Fuse holder retaining plate
3 Fuses F1-2

Electrical System for 2.0 / 2.4 MIVEC PHEV

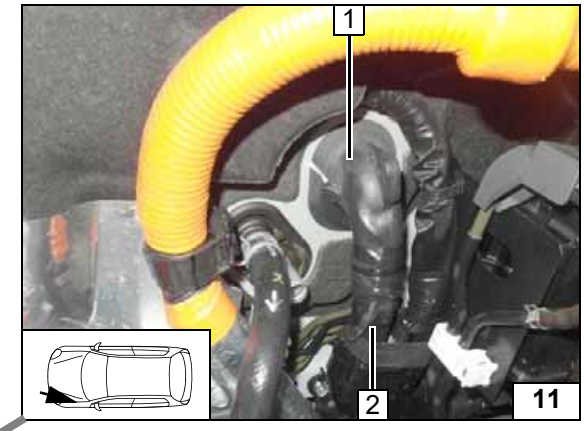
Positive wire

1 Positive wire
2 Female connector, housing on free socket of terminal 30+ (check if 30+ of positive support point **3** fits.)
3 Positive support point

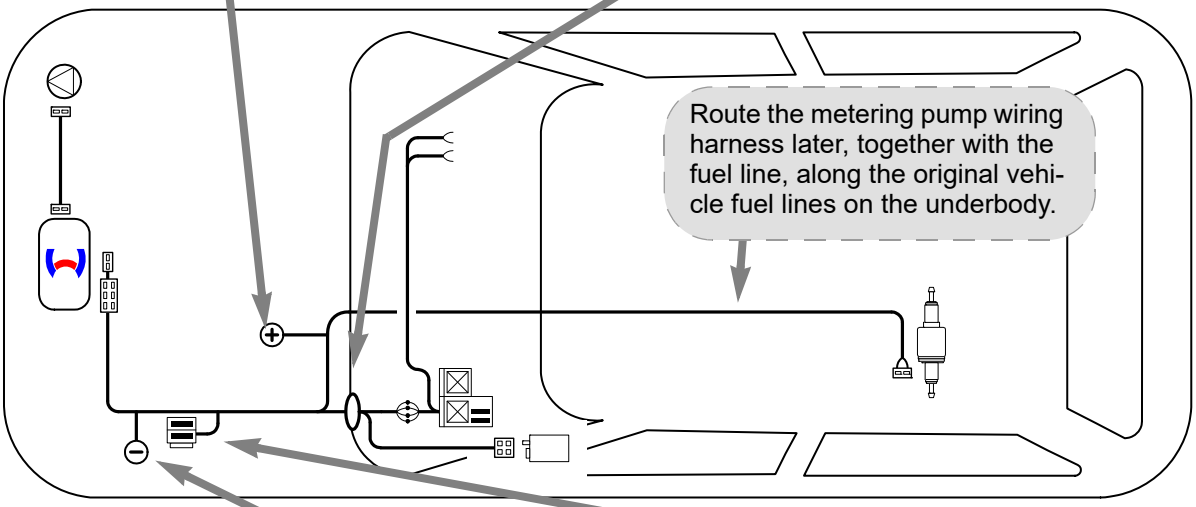


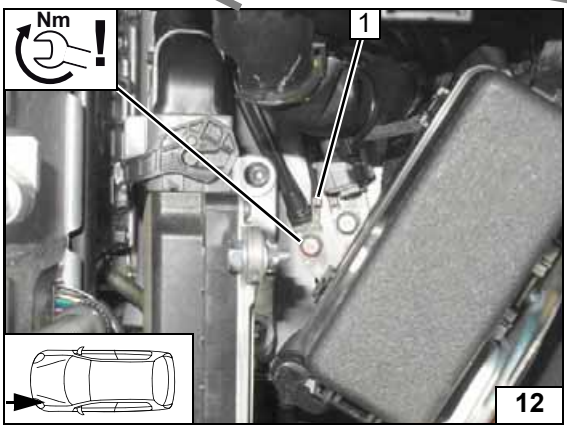
Wiring harness pass through

1 Protective rubber plug
2 Heater wiring harnesses, control element



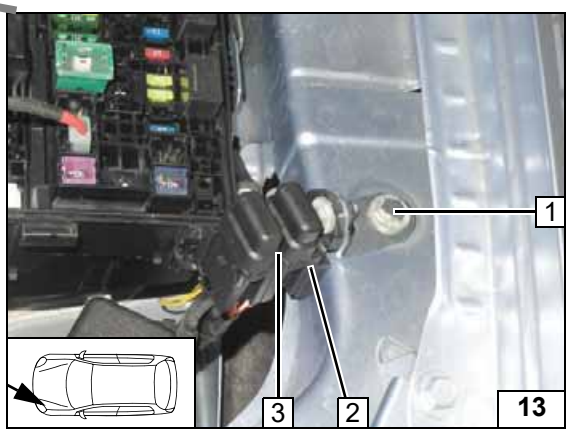
Wiring harness routing diagram





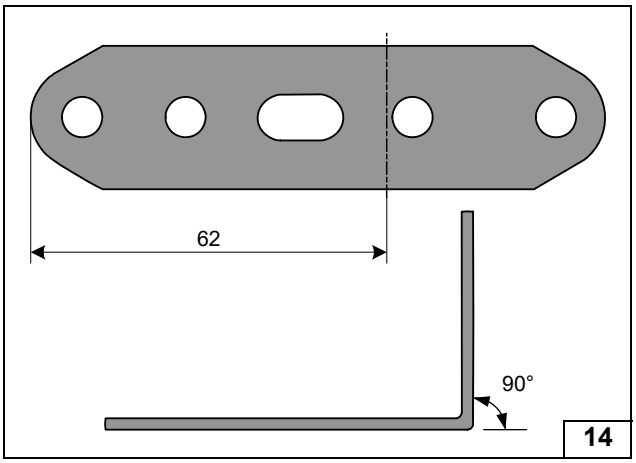
Earth wire

1 Earth wire on original vehicle earth support point



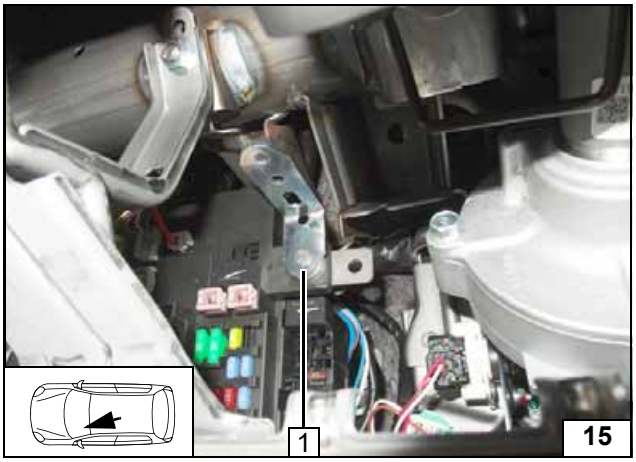
Engine compartment fuse holder

1 M6x20 bolt, large diameter washer, pre-mounted angle bracket, existing hole, (underneath a cover if necessary), flanged nut
2 Fuse holder retaining plate
3 Fuses F1-2



All vehicles

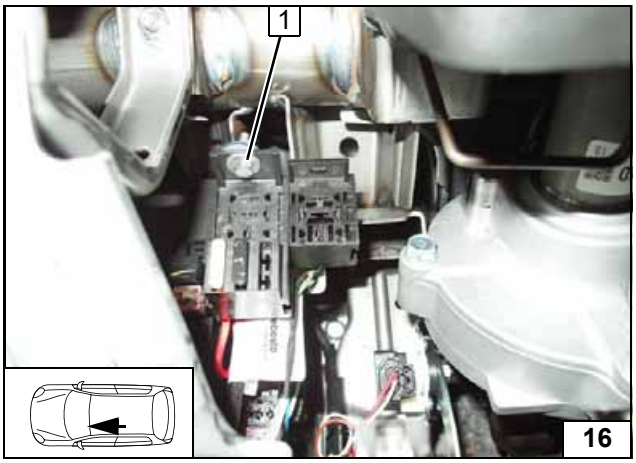
Angling down perforated bracket



Remove original vehicle bolt at position **1** and discard.

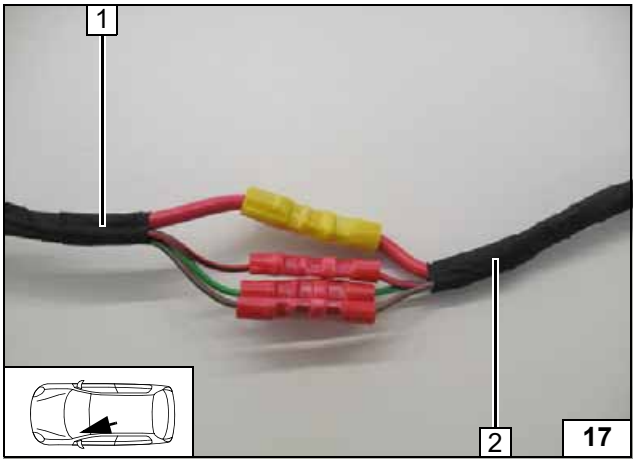
1 M6x30 bolt, perforated bracket, 8 distance washer, existing threaded hole

Installing perforated bracket



1 M5x16 bolt, large diameter washer, passenger compartment relay and fuse holder, premounted perforated bracket, large diameter washer, nut

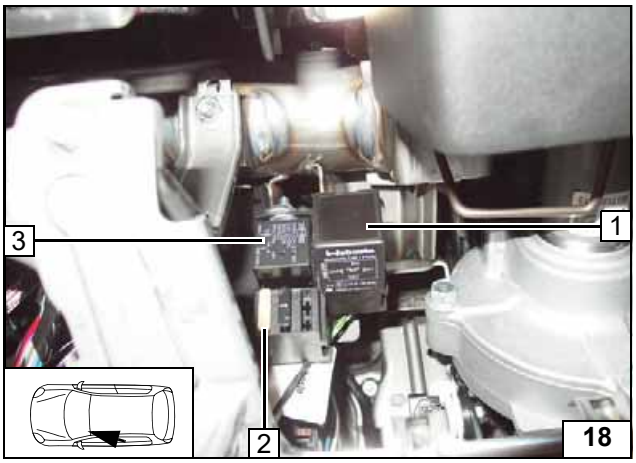
Installing passenger compartment relay and fuse holder



Red (rt) wire (4.0mm²) with (rt) (4.0mm²)
Red/black (rt/sw) wire (0.5mm²) with red/black (rt/sw) wire (0.5mm²)
Green/white (gn/ws) wire (0,75mm²) with green/white (gn/ws) wire (0,5mm²)
Brown (br) wire (0.5mm²) with brown (br) wire (0.5mm²)

1 Passenger compartment relay and fuse holder wiring harness
2 Heater wiring harness

Connecting same colour wires of wiring harnesses

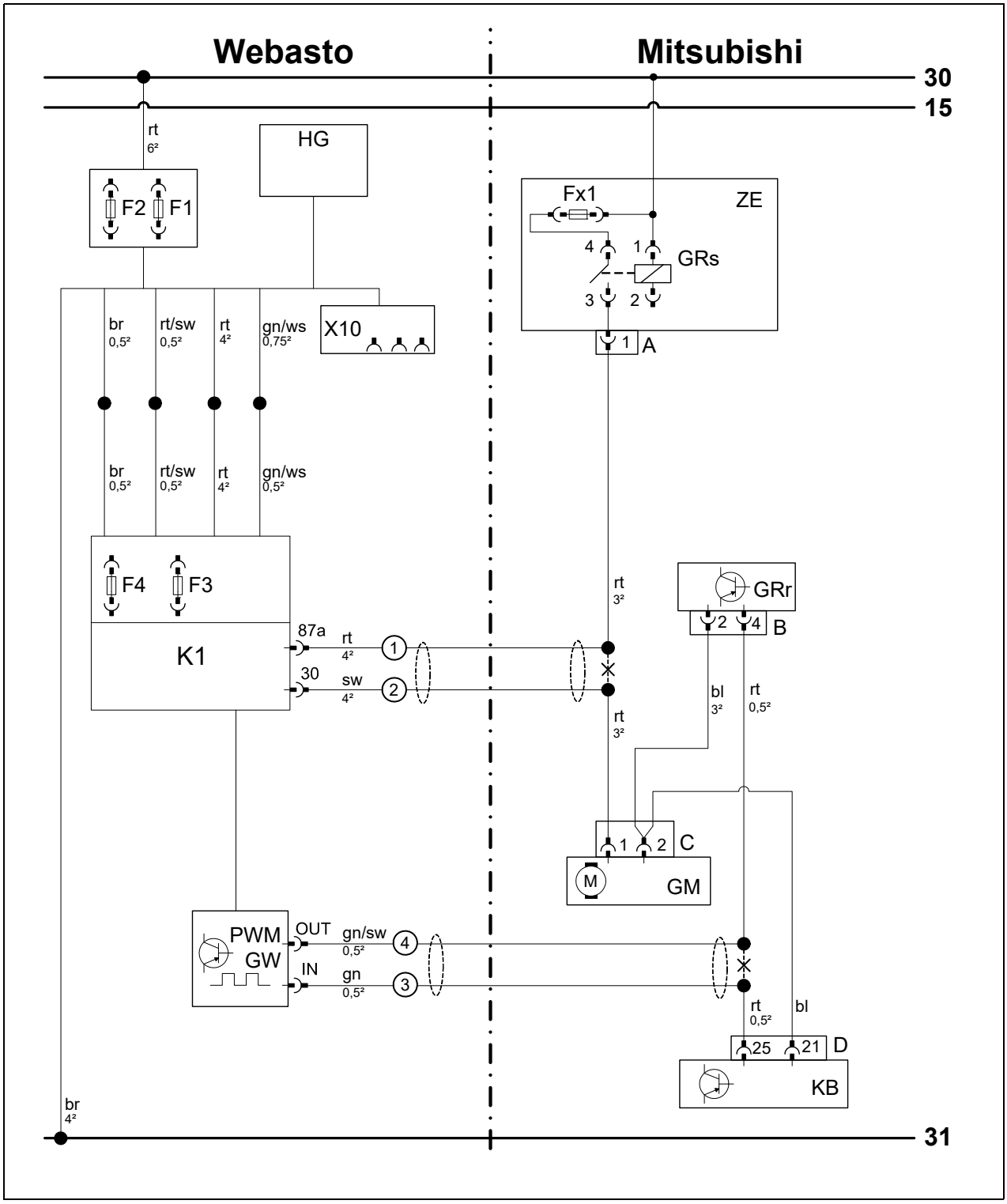


Route fan wiring harness and PWM control wiring harness to the right side of the vehicle.

1 PWM GW
2 25A fuse F4
3 Relay K1

Mounting PWM GW, relay K1 and fuse F4

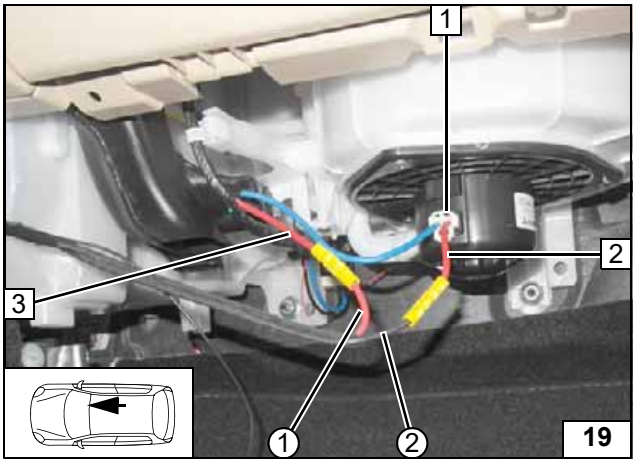
Fan Controller



System wiring diagram

Webasto components		Vehicle components		Colours and symbols	
HG	TT-Evo heater	ZE	Central electrical box	rt	red
F1	20A fuse	Fx1	30A fuse	ws	white
F2	30A fuse	GRs	Fan relay	sw	black
X10	4-pin socket of control element	A	1-pin connector of ZE	br	brown
		GRr	Fan controller	gn	green
F3	1A fuse	B	4-pin connector of GR	bl	blue
F4	25A fuse	GM	Fan motor		
K1	Fan relay	C	2-pin connector of GM		
PWM GW	Pulse width modulator	KB	A/C control panel		
		D	32-pin connector of KB		
PWM GW settings:					
Duty cycle: 100% (DC)					
Frequency: not relevant					
Voltage: 4.2V				**X**	Cutting point
Function: High side				Wiring colours may vary.	

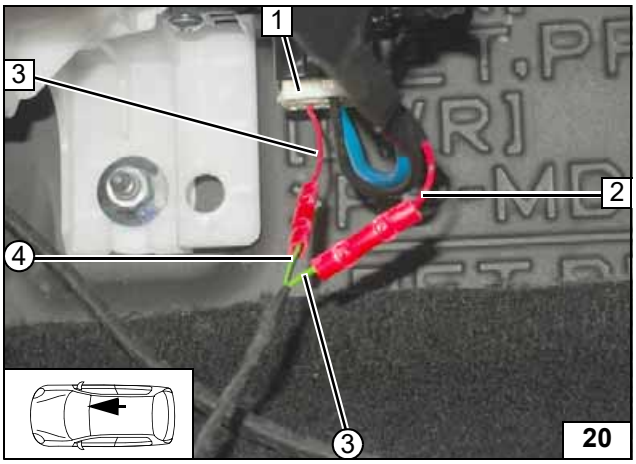
Legend



Produce all following electrical connections as shown in the system wiring diagram.

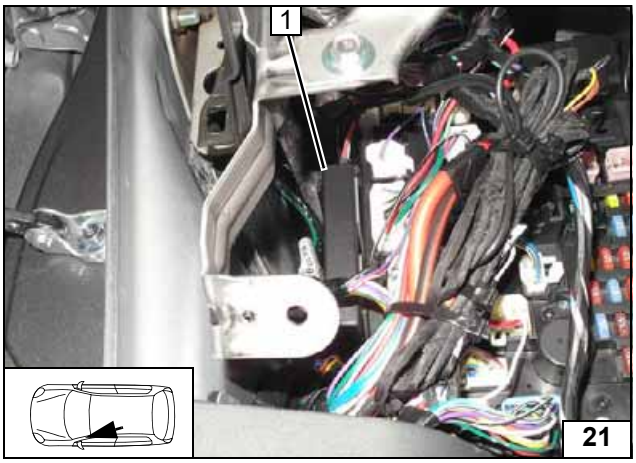
1 Fan motor connector C
2 Red (rt) wire from connector C/ pin 1 of fan motor
3 Red (rt) wire from connector A/ pin 1 of central electrical box
① Red (rt) wire from K1/87a of fan wiring harness
② Black (sw) wire from K1/30 of fan wiring harness

Connecting fan motor



1 Connector B of fan controller
2 Red (rt) wire from connector D/ pin 25 of A/C control panel
3 Red (rt) wire from connector B/ pin 4 of fan controller
③ Green (gn) wire from PWM GW/ IN of PWM control wiring harness
④ Green/black (gn/sw) wire from PWM GW/ OUT of PWM control wiring harness

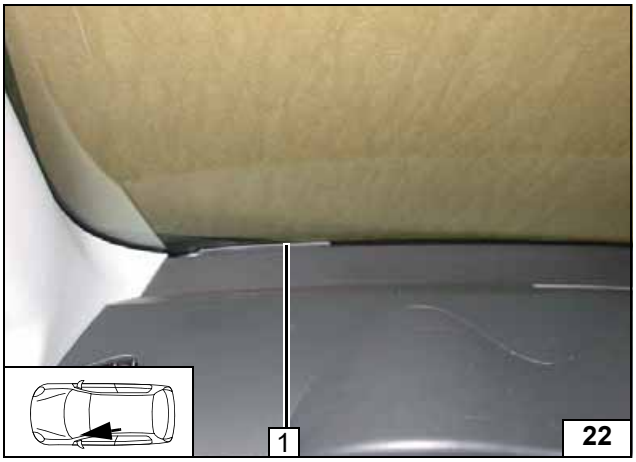
Connecting fan controller



Remote Option (Telestart)

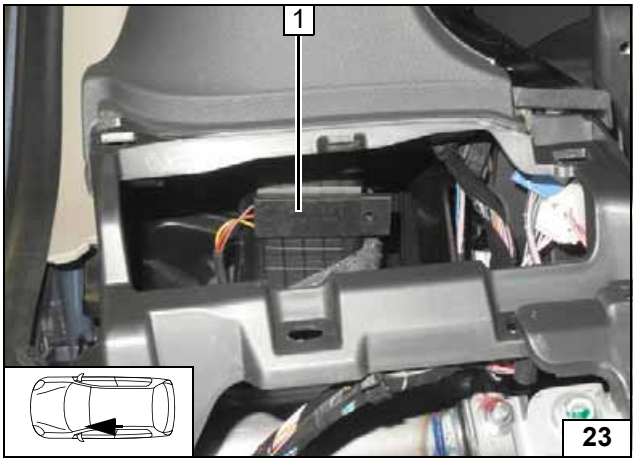
Fasten receiver **1** using double-sided adhesive tape.

Installing receiver



1 Aerial

Installing aerial



Temperature sensor only for T100 HTM

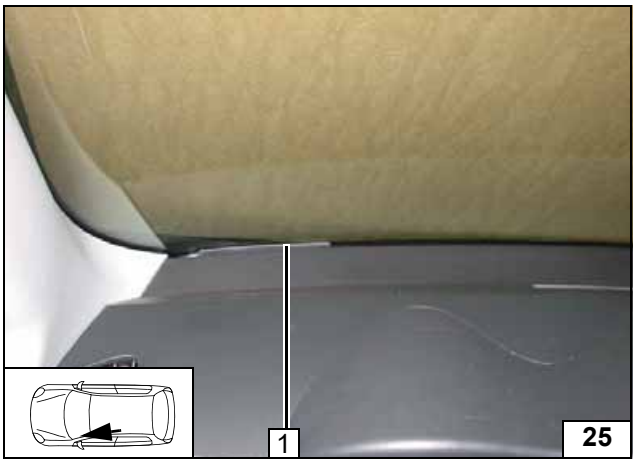
Fasten temperature sensor **1** using double-sided adhesive tape.

Installing temperature sensor

ThermoCall Option

Fasten receiver **1** using double-sided adhesive tape.

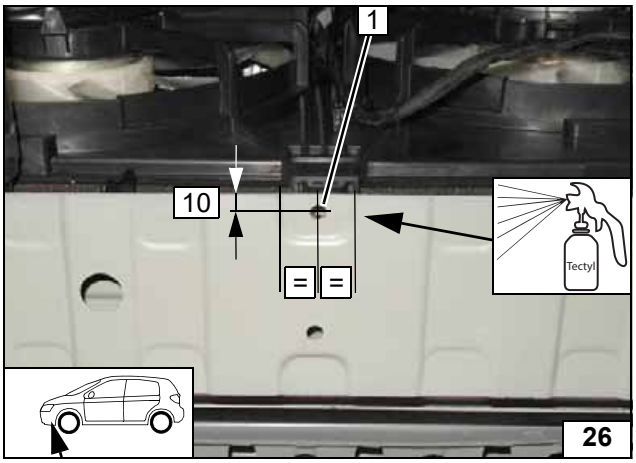
Installing receiver



1 Aerial (optional)

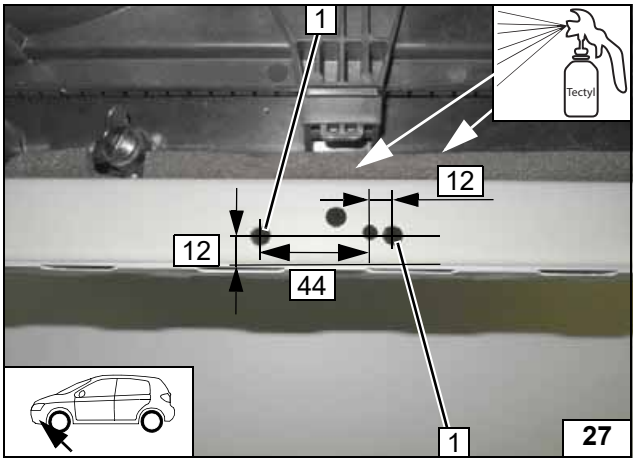
Installing aerial

Preparing Installation Location



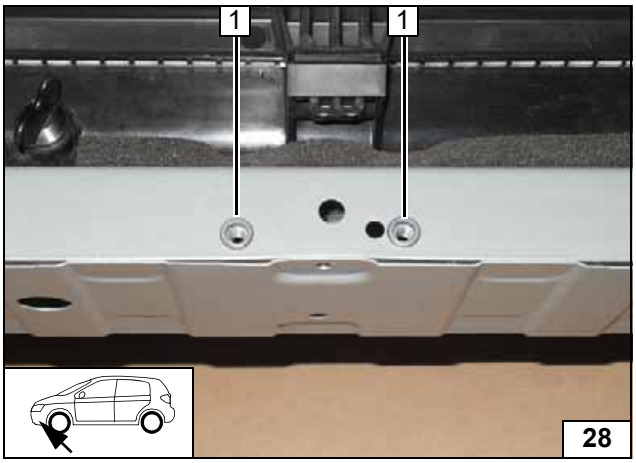
1 Copy hole pattern, Ø7 hole

Drilling hole



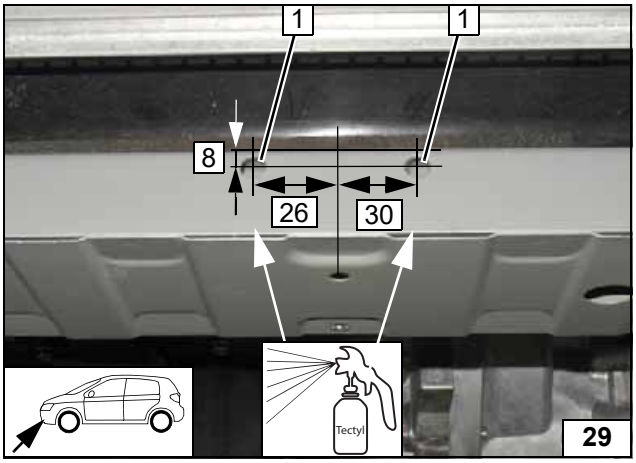
1 Copy hole pattern, Ø9.1 hole

Drilling holes for rivet nuts



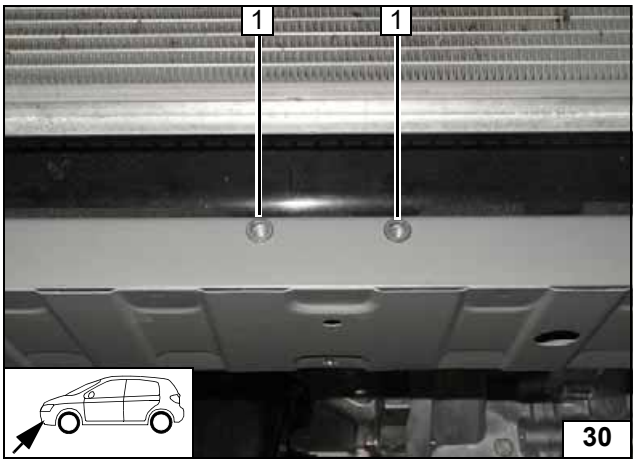
1 Rivet nut

Installing rivet nuts



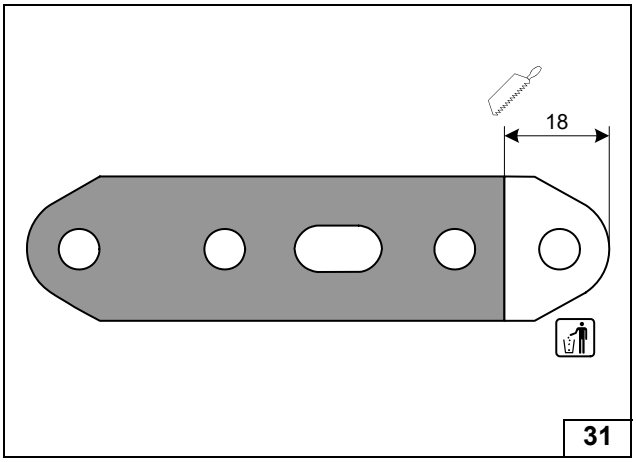
1 Copy hole pattern, Ø9.1 hole

Drilling holes for rivet nuts

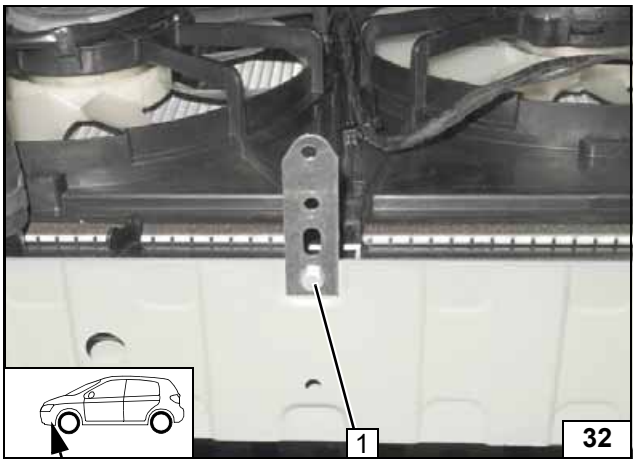


1 Rivet nut

Installing rivet nuts

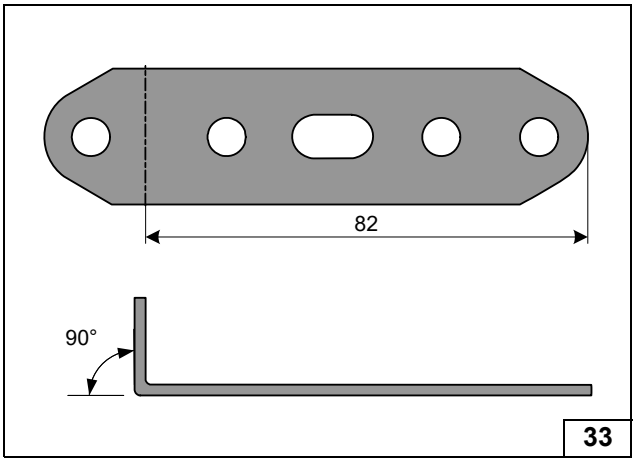


Cutting perforated bracket to length

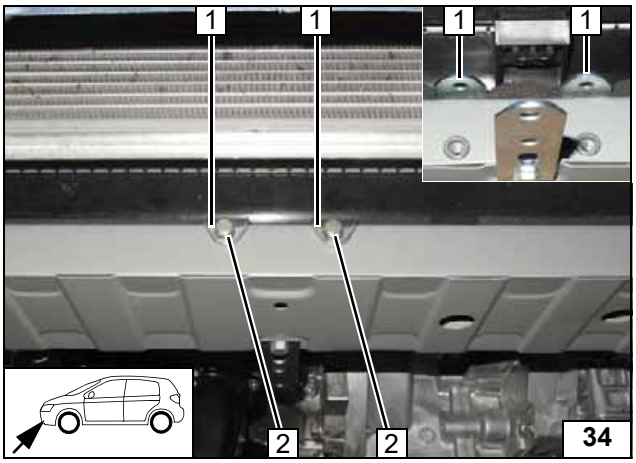


1 M6x12 bolt, prepared perforated bracket, flanged nut

Installing perforated bracket

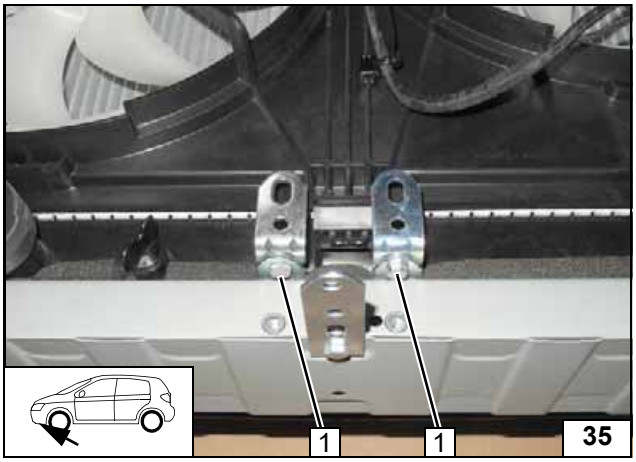


Bending 2 perforated brackets



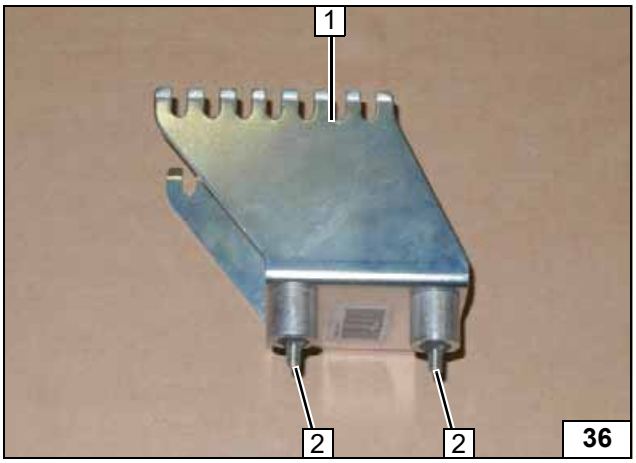
1 Prepared perforated bracket
2 M6x20 bolt, spring lock washer

Installing perforated brackets



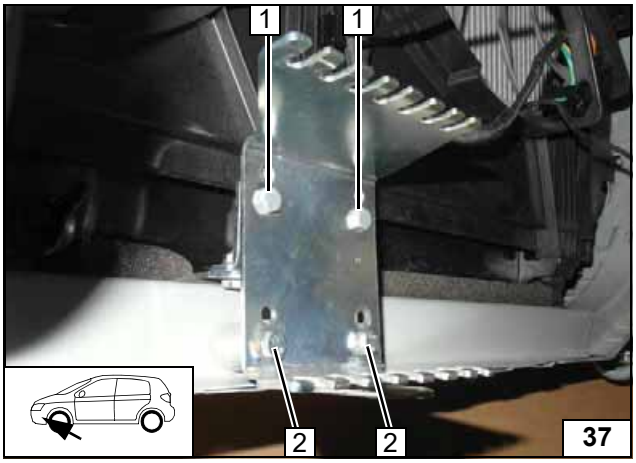
1 M6x12 bolt, mounted perforated bracket, angle bracket, flanged nut

Installing angle bracket



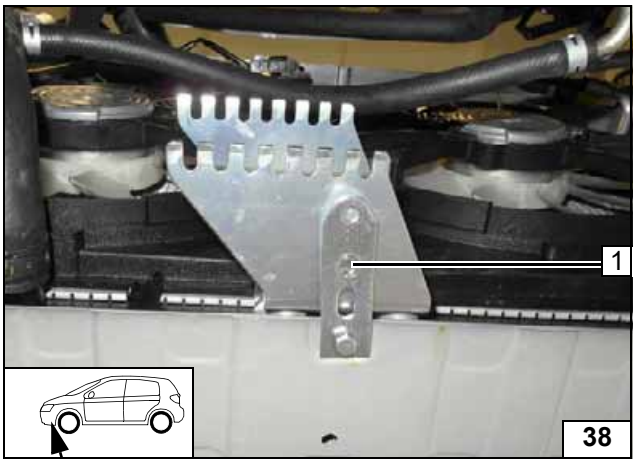
1 Bracket
2 M6x40 bolt, spring lock washer, 15 distance washer, lock washer

Preparing bracket



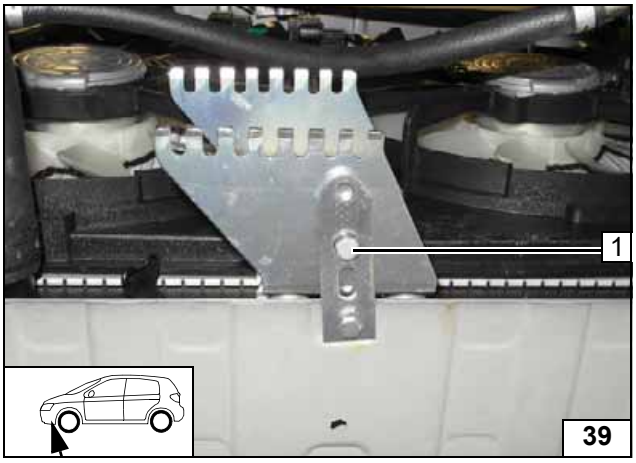
1 M6x12 bolt, bracket, mounted angle bracket, flanged nut
2 Tighten premounted bolts

Installing bracket



1 Copy hole pattern, Ø7 hole

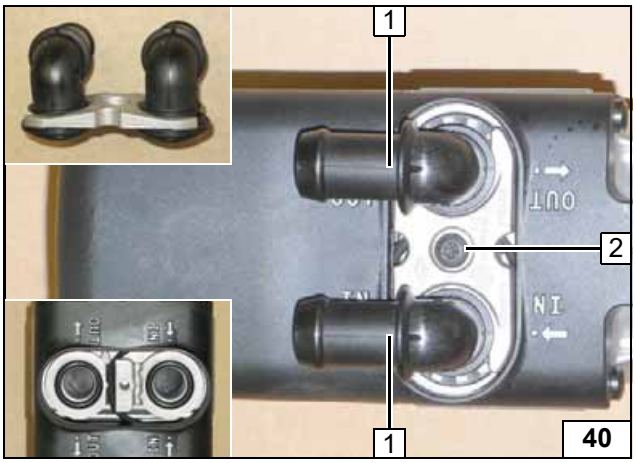
Hole in bracket



1 M6x12 bolt, flanged nut

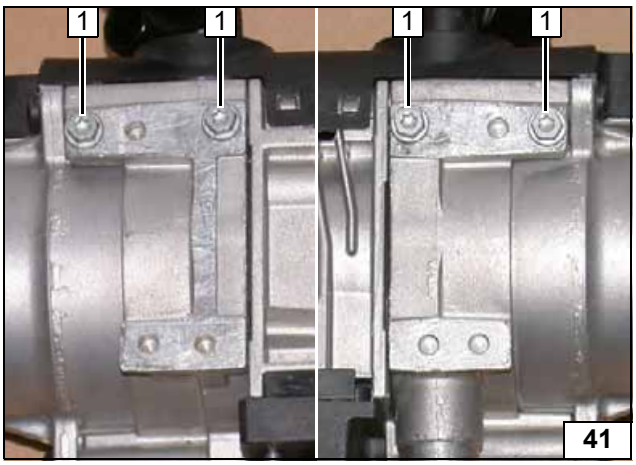
Installing bracket

Preparing Heater



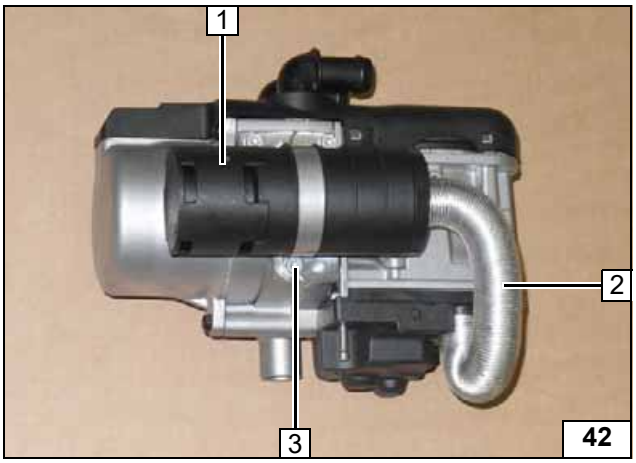
1 Water connection piece, sealing ring
2 5x15 self-tapping bolt, retaining plate of water connection piece

Installing water connection piece



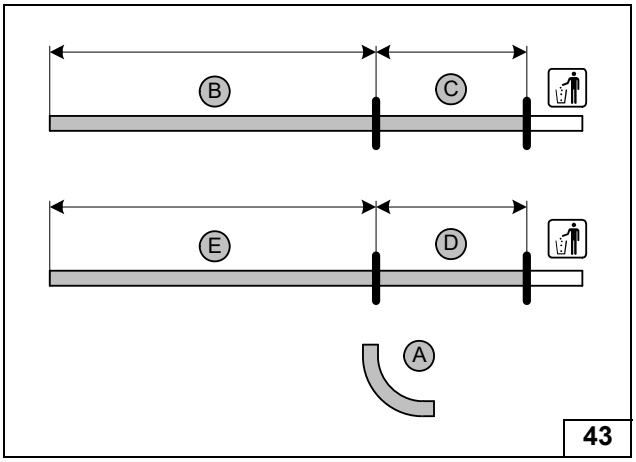
Screw 5x13 self-tapping bolts **1** into existing holes by a maximum of 3 thread turns.

Premounting bolts loosely



1 Silencer
2 Combustion air pipe
3 5x13 self-tapping bolt, Ø51 clamp, available hole in heater

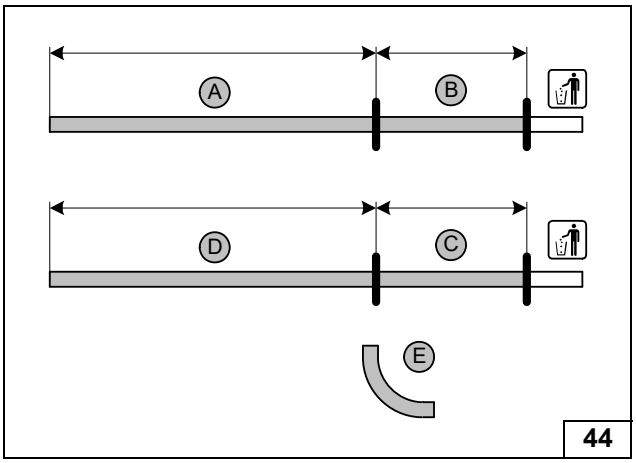
Installing silencer



2.0 MIVEC

A = 90°, Ø18
B = 1430
C = 440
D = 460
E = 1500

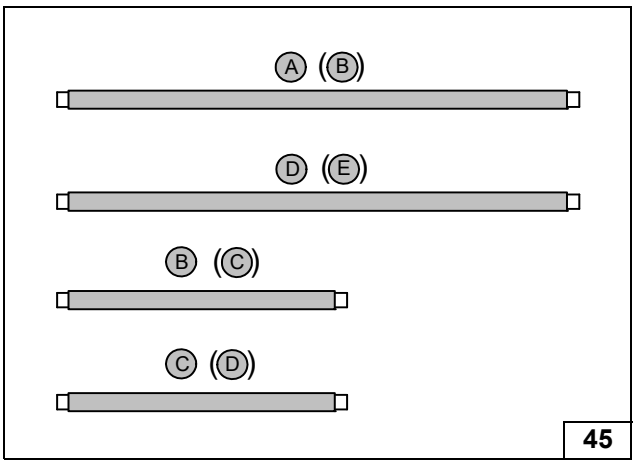
Cutting hoses to length



2.0 / 2.4 MIVEC PHEV

A = 1330
B = 440
C = 460
D = 1370
E = 90°, Ø18

Cutting hoses to length

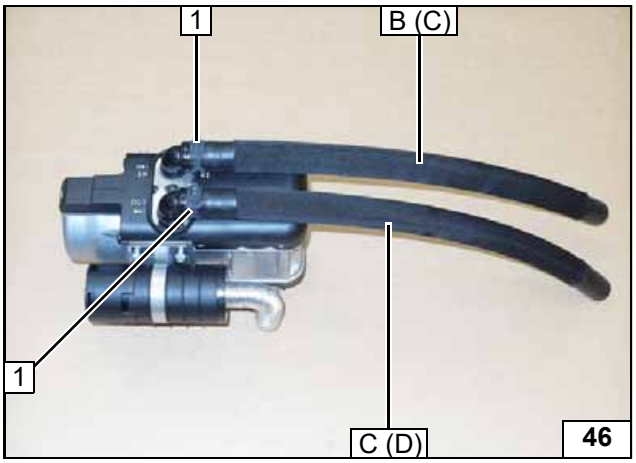


All vehicles

The hose designations in brackets apply to 2.0 MIVEC in this and the next figures.

Slide on, cut to length and shrink fabric heat shrink tubings

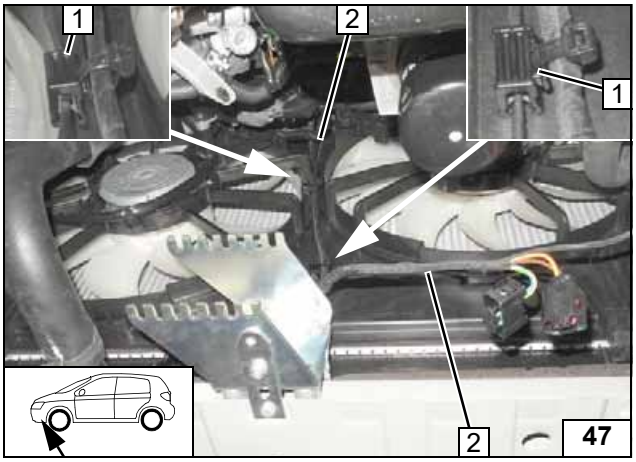
Preparing hoses



1 Ø25 spring clip

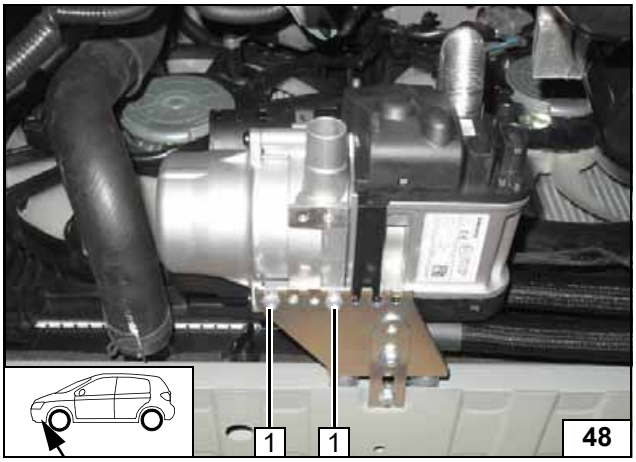
Premounting hoses B(C) and C(D)

Installing Heater



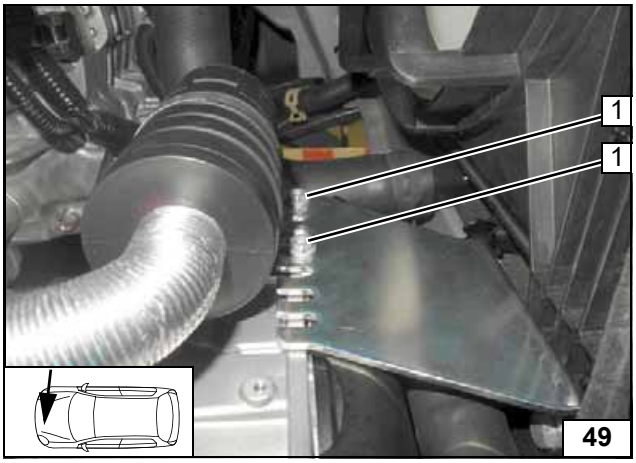
1 Edge clip cable tie
2 Heater wiring harness

Routing wiring harness of heater



1 5x13 self-tapping bolt

Installing heater



1 5x13 self-tapping bolt

Installing heater

Fuel

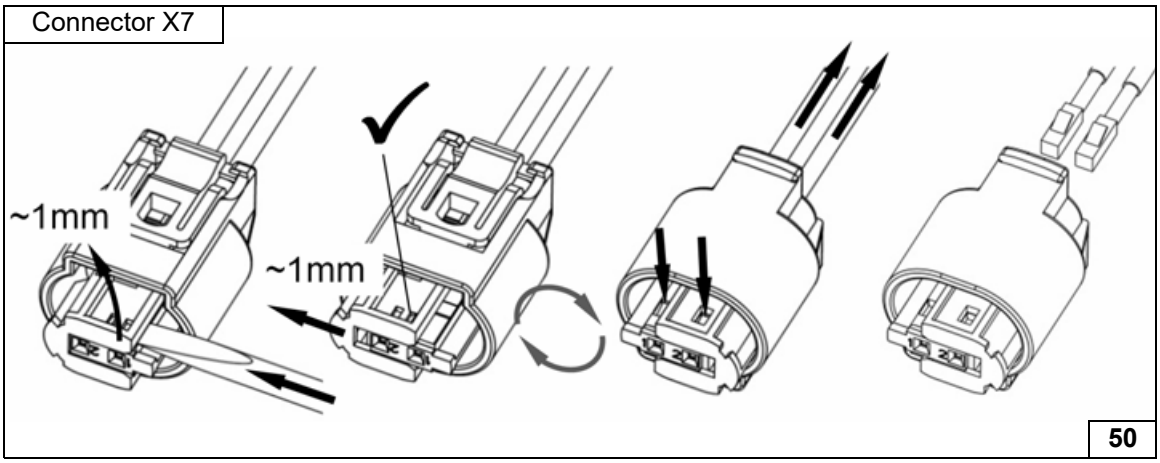
Open the vehicle's fuel tank cap, ventilate the tank and then re-close the tank lock.

Catch any fuel running off in an appropriate container.

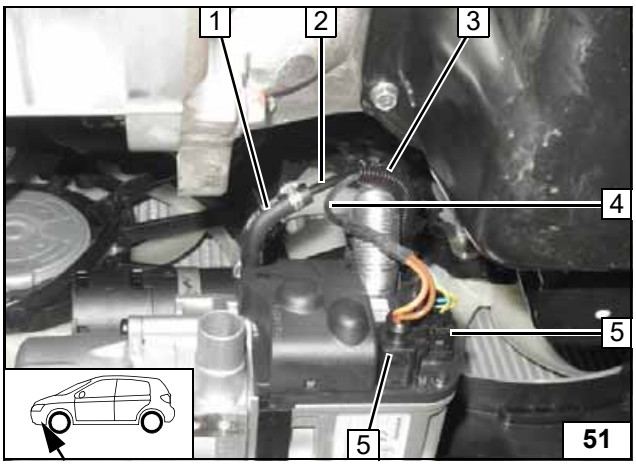
Route fuel line and metering pump wiring harness so that they are protected against stone impact.
Unless specified otherwise, always fasten using cable ties.
Provide rub protection for fuel line and wiring harness in areas where there are sharp edges.

The fuel line and wiring harness are routed to the metering pump as shown in the wiring harness routing diagram.

Dismantling metering pump connector



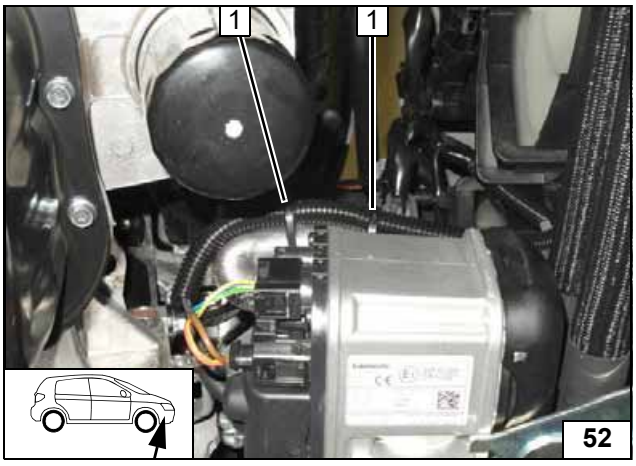
Connecting fuel line to heater



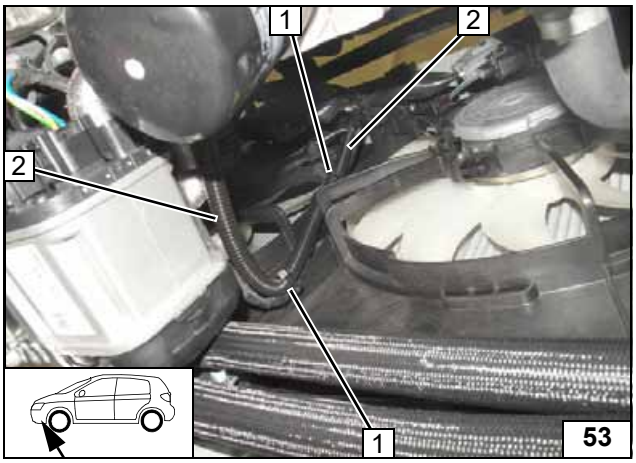
Pull fuel line **2** and wiring harness of metering pump **4** into Ø10 corrugated tube **3**.

1 90° moulded hose, Ø10 clamp [2x]
5 Connector of heater wiring harness

Routing lines

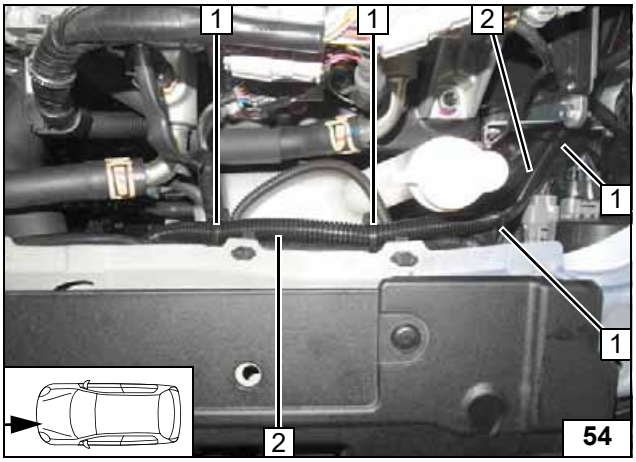


1 Cable tie around combustion air pipe and corrugated tube



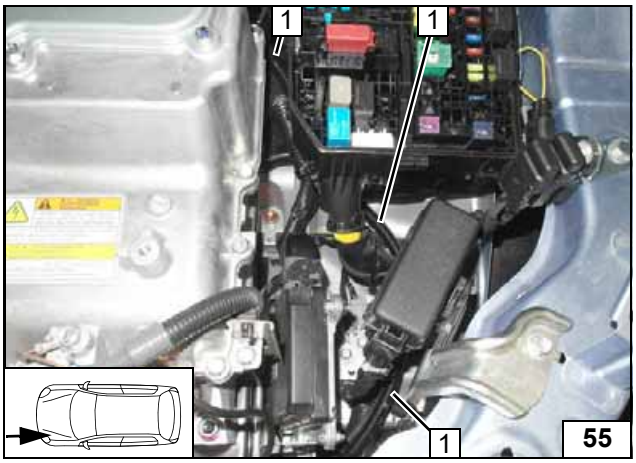
1 Cable tie on heater wiring harness
2 Fuel line and wiring harness of metering pump in Ø10 corrugated tube

Routing lines



1 Cable tie on original vehicle wiring harness
2 Fuel line and wiring harness of metering pump in Ø10 corrugated tube

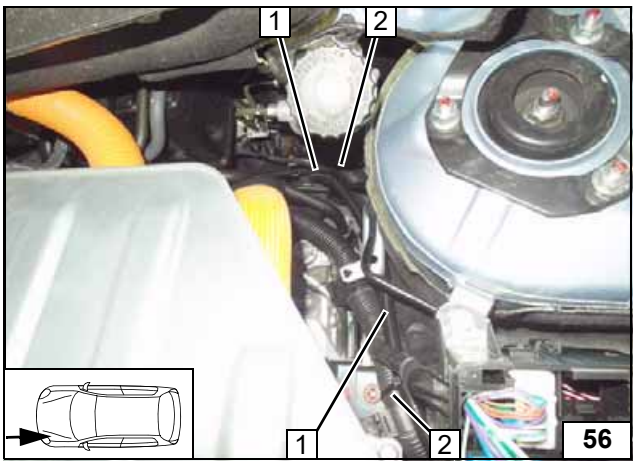
Routing lines



This work step and the next steps are shown on a 2.0 MIVEC PHEV!

Route fuel line and wiring harness of metering pump in Ø10 corrugated tube **1** to the firewall and fasten to original vehicle wiring harness using cable ties.

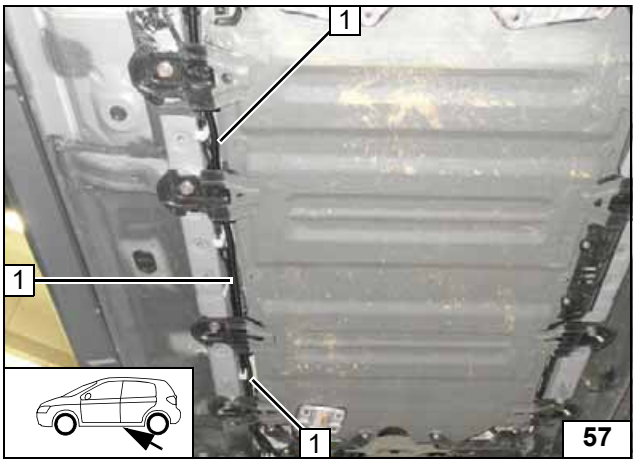
Routing lines



Route fuel line and wiring harness of metering pump in Ø10 corrugated tube **1** along original vehicle lines to the underbody.

2 Cable tie on original vehicle wiring harness

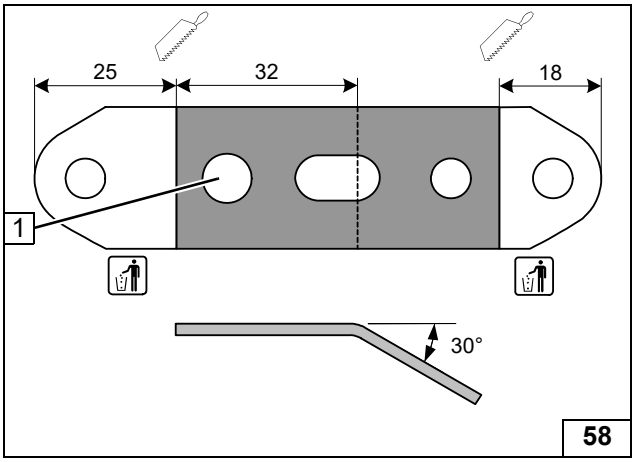
Routing lines



Route fuel line and wiring harness of metering pump in Ø10 corrugated tube **1** along original vehicle lines to the installation location of the metering pump and secure using cable ties.

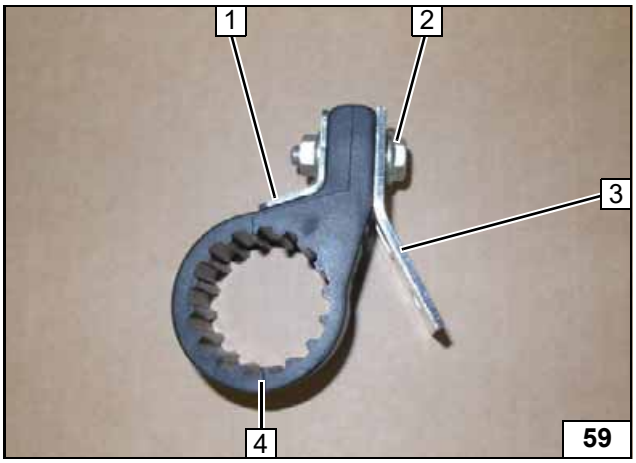
Routing lines

2.0 MIVEC



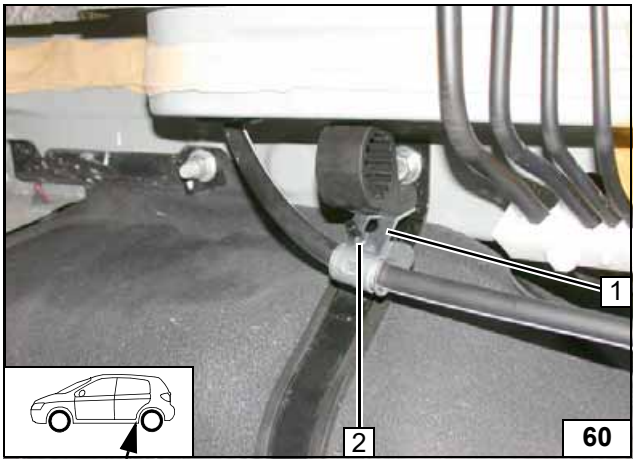
1 Drill out hole to Ø8.5

Cutting to length, drilling and bending perforated bracket



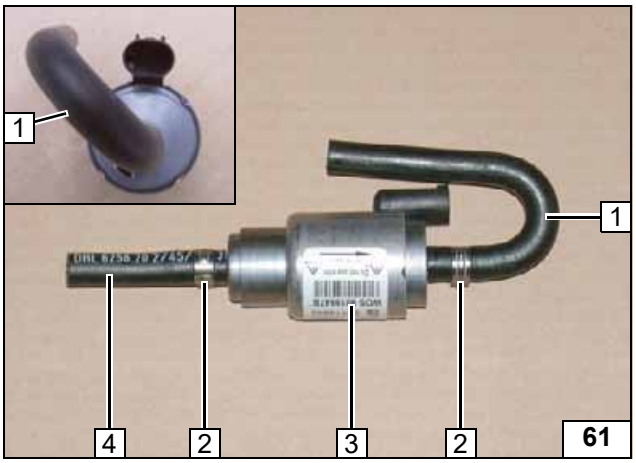
1 Support angle bracket
2 M6x25 bolt, flanged nut
3 Perforated bracket
4 Metering pump mount

Premounting metering pump mount



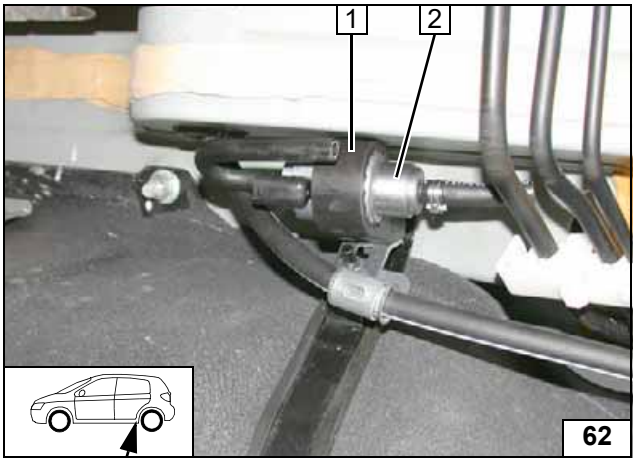
1 Perforated bracket
2 Original vehicle stud bolt, original vehicle nut

Mounting metering pump mount



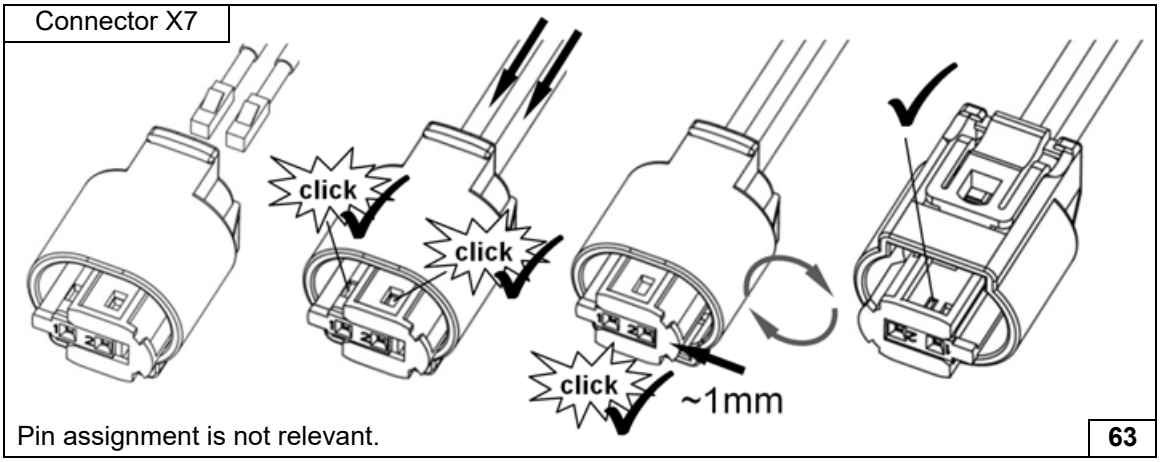
1 180° moulded hose
2 Ø10 clamp
3 Metering pump
4 Hose section

Premounting metering pump

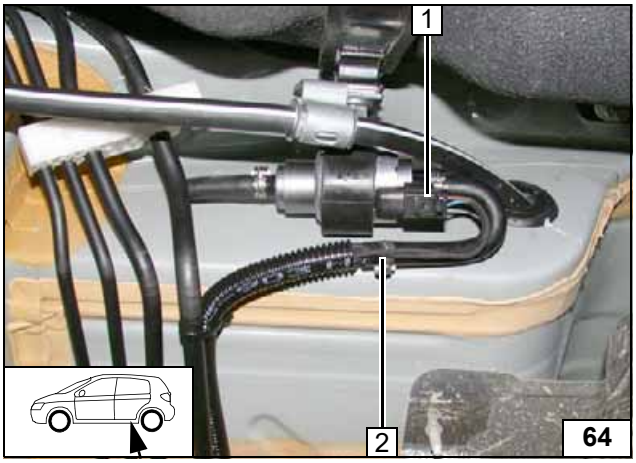


1 Metering pump mount
2 Metering pump

Installing metering pump



Completing metering pump connector



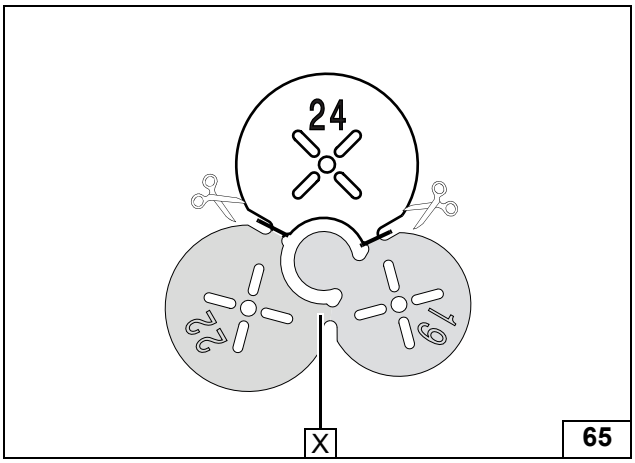
1 Metering pump wiring harness, connector X7 mounted
2 Fuel line of heater, Ø10 clamp

Connecting metering pump

FuelFix Installation for 2.0 MIVEC

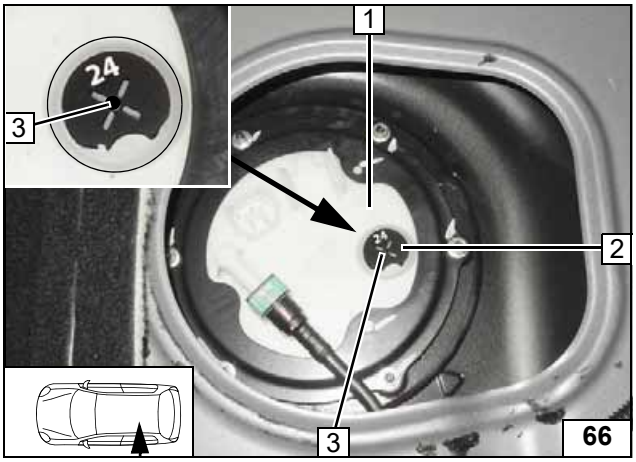
X =

Preparing drilling template



Work steps F1 and F2.

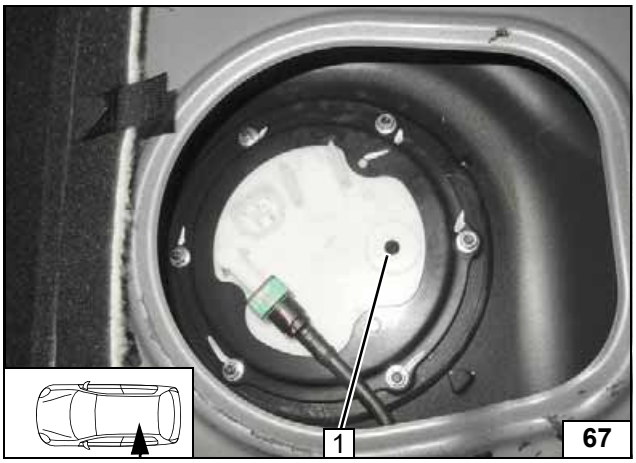
Copying hole pattern



1 Tank fitting
2 Position Ø24 drilling template in the centre of the raised part of the tank fitting as shown
3 Copy hole pattern

Work step F3.

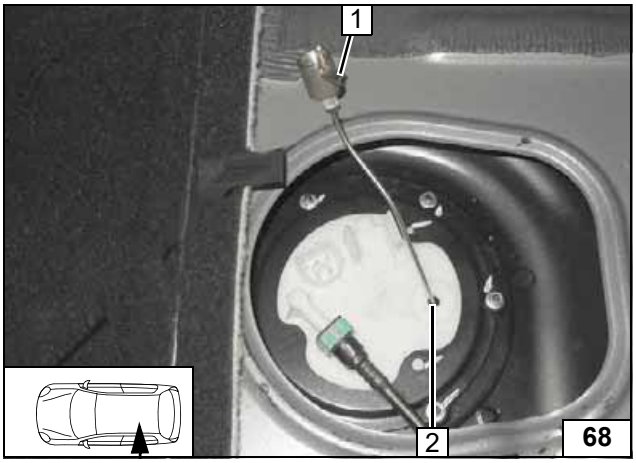
Hole for FuelFix



1 Hole made with provided drill

Work steps F4 and F5.

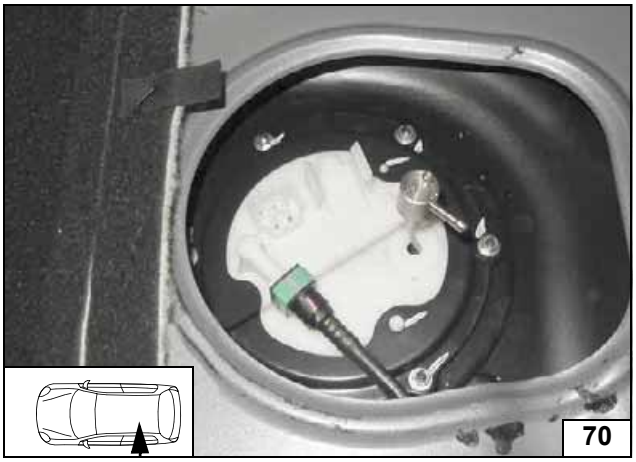
Preparing and inserting FuelFix



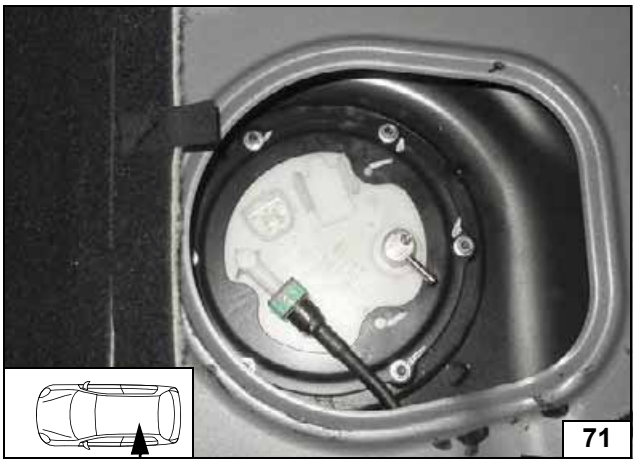
Bend FuelFix **1** according to template and cut to length.
Insert into hole **2**.

Work step F5.

Inserting FuelFix



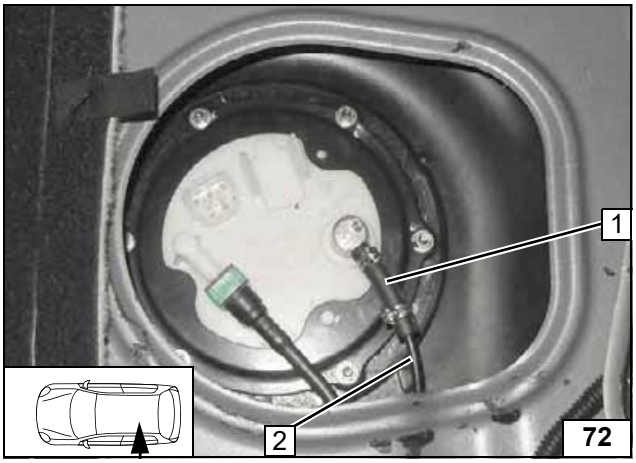
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix as shown.

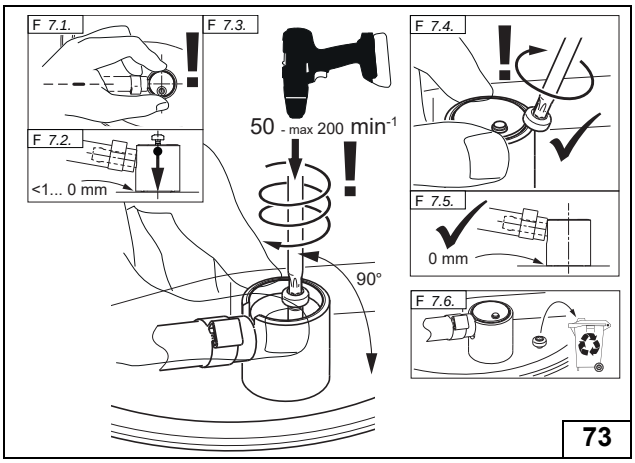
Aligning FuelFix



Work step F6.

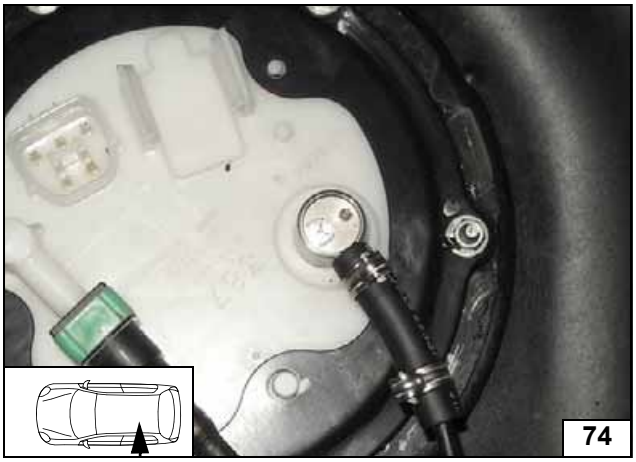
1 Hose section, Ø10 clamp [2x]
2 Fuel line

Connecting fuel line



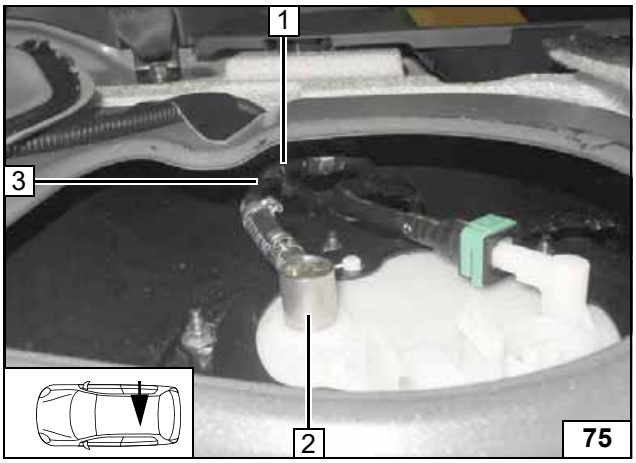
Work step F7.

Installing FuelFix



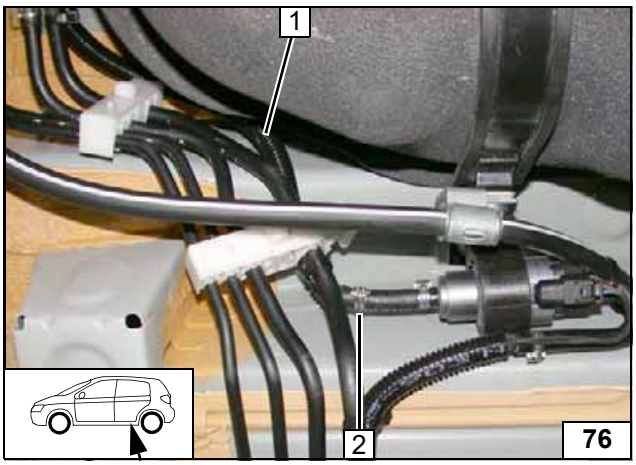
Work step F8.

Ensuring firm seating of FuelFix



1 Cable tie as tension relief
2 FuelFix installed
3 Fuel line of FuelFix

Securing fuel line

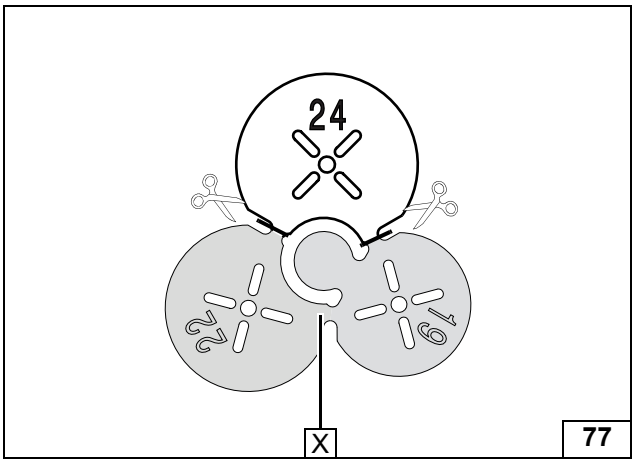


Route fuel line of FuelFix in Ø10 corrugated tube **1** along original vehicle lines and secure with cable ties.
Check the position of the components; correct if necessary. Check that they have freedom of movement.

2 Ø10 clamp

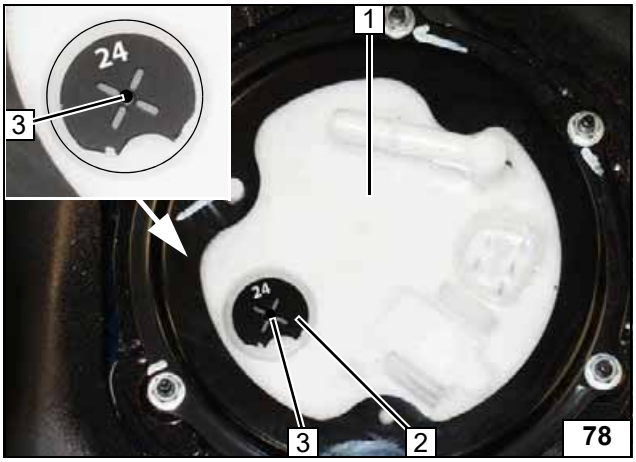
Connecting metering pump

FuelFix Installation for 2.0 / 2.4 MIVEC PHEV



X =

Preparing drilling template

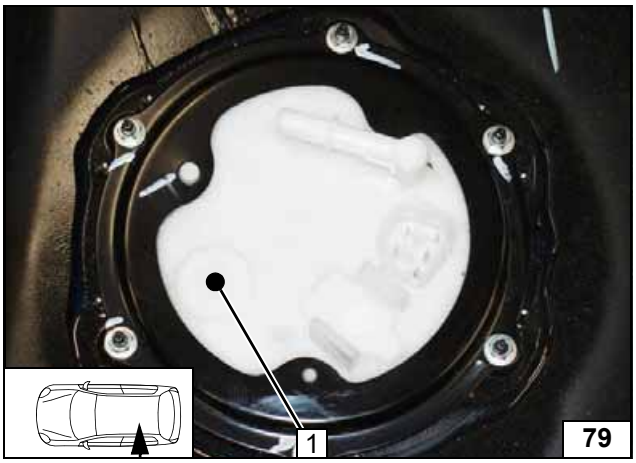


Remove fuel tank according to manufacturer's instructions.

Work steps F1 and F2.

1 Tank fitting
2 Position Ø24 drilling template in the centre of the raised part of the tank fitting as shown
3 Copy hole pattern

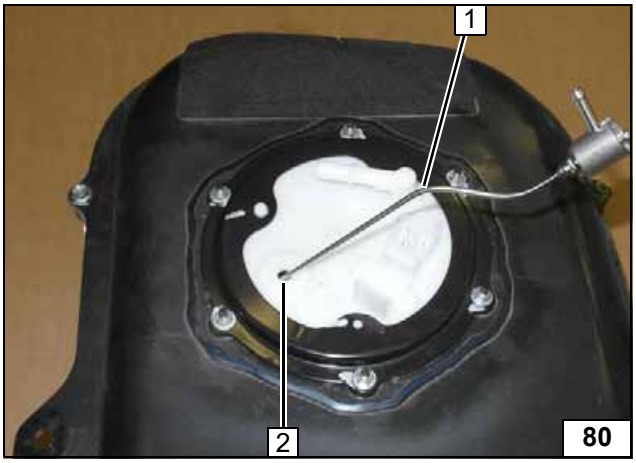
Hole for FuelFix



Work step F3.

1 Hole made with provided drill

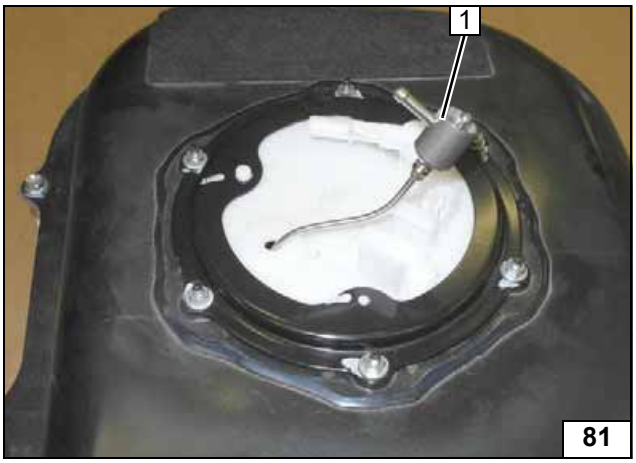
Hole for FuelFix



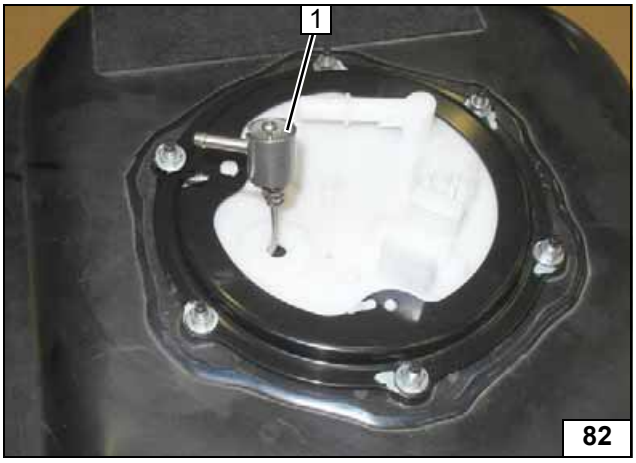
Work steps F4 and F5.

Bend FuelFix **1** according to template and cut to length.
Insert into hole **2**.

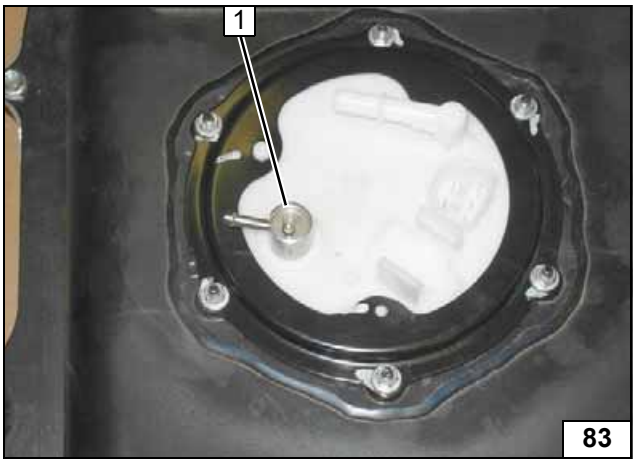
Preparing and inserting FuelFix



Inserting FuelFix



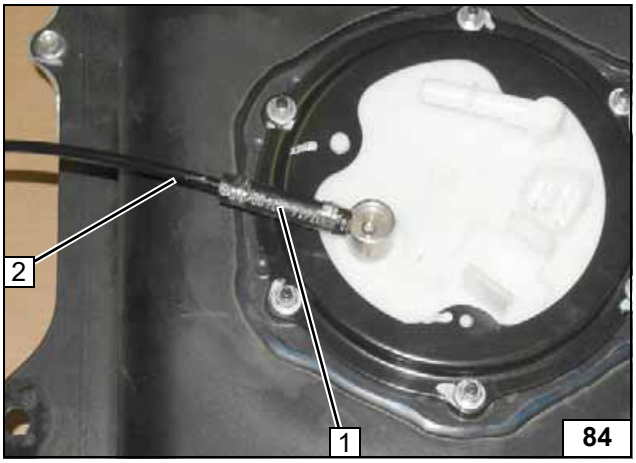
Inserting FuelFix



Work steps F5.3 and F5.4.

Align FuelFix **1** as shown.

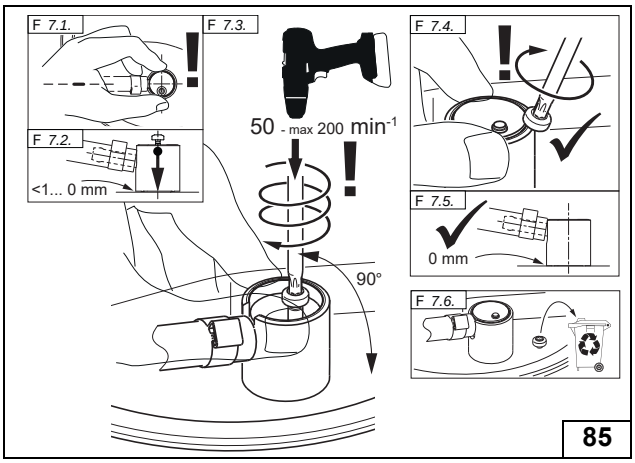
Aligning FuelFix



Work step F6.

1 Hose section, Ø10 clamp [2x]
2 Fuel line cut to length to 1000mm

Connecting fuel line



85

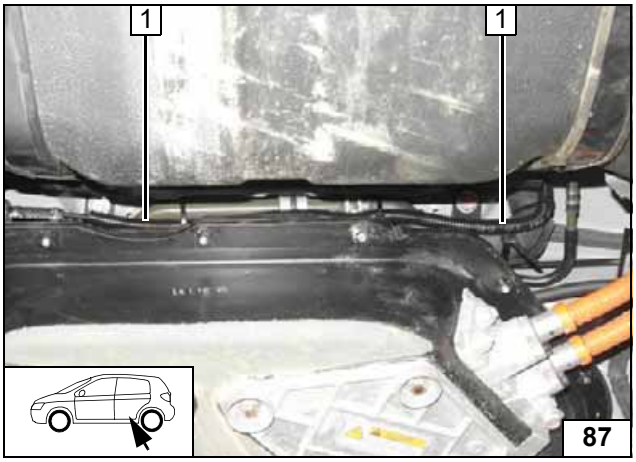
Work step F7.

Installing FuelFix


86

Work step F8.

Ensuring firm seating of FuelFix



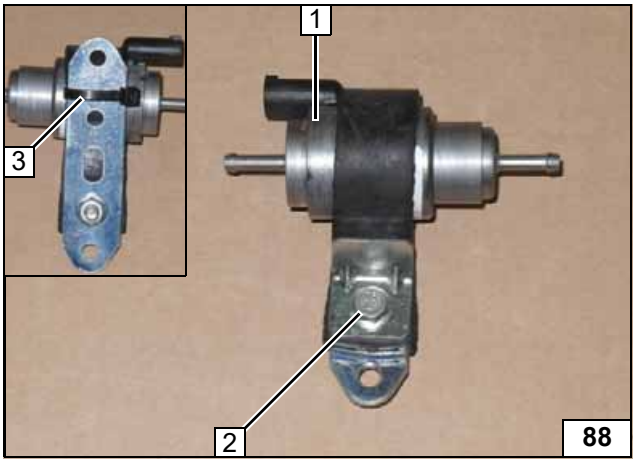
87

Install fuel tank as per the manufacturer's instructions.

Work step F8.

Route fuel line of FuelFix in Ø10 corrugated tube **1** along original vehicle lines and secure with cable ties to relieve the tension.

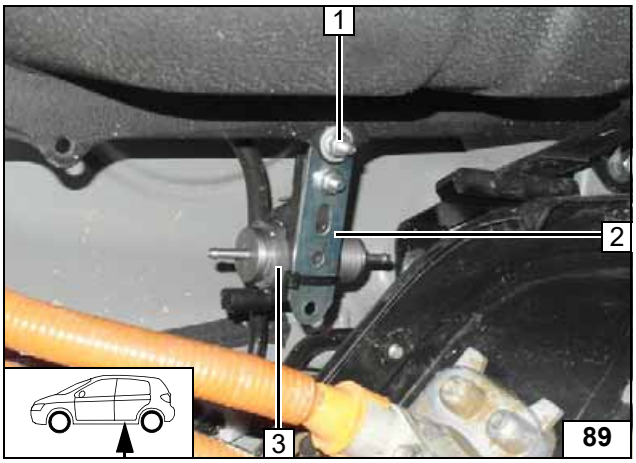
Fuel extraction



88

1 Metering pump
2 M6x25 bolt, support angle bracket, metering pump mount, perforated bracket, flanged nut
3 Cable tie through metering pump mount

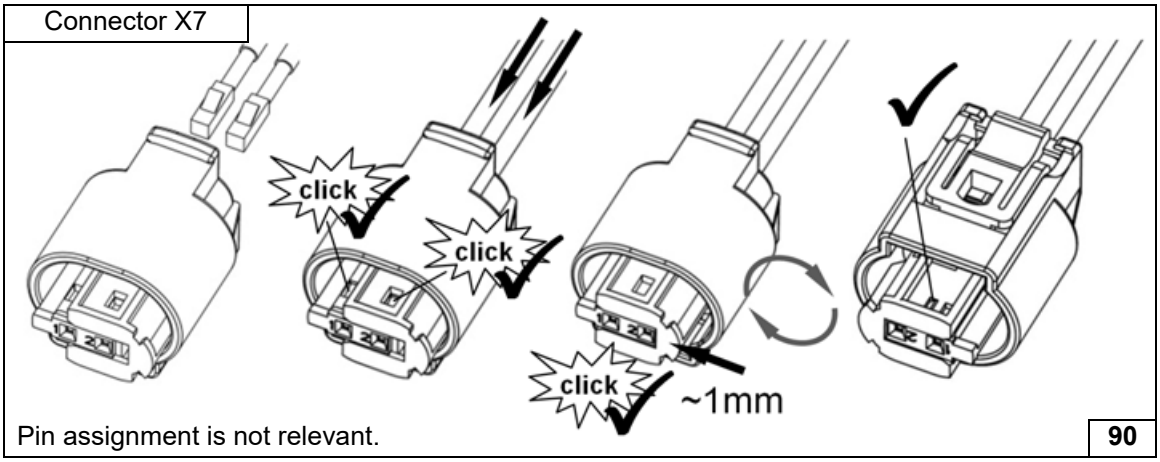
Preparing metering pump



1 M6x20 bolt, perforated bracket, existing hole in tank, large diameter washer with outer Ø d_a = 18, flanged nut
2 Premounted perforated bracket
3 Metering pump

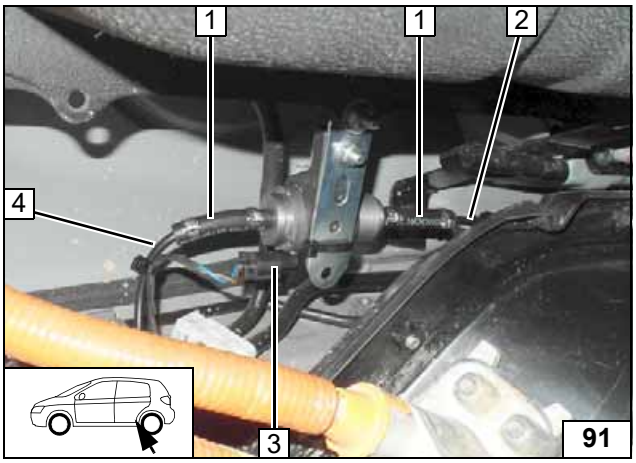
Installing metering pump

Connector X7



Pin assignment is not relevant.

Completing metering pump connector



Ensure sufficient distance from neighbouring components, correct if necessary.

1 Hose section, Ø10 clamp [2x]
2 Fuel line of FuelFix
3 Metering pump wiring harness, connector X7 mounted
4 Fuel line of heater

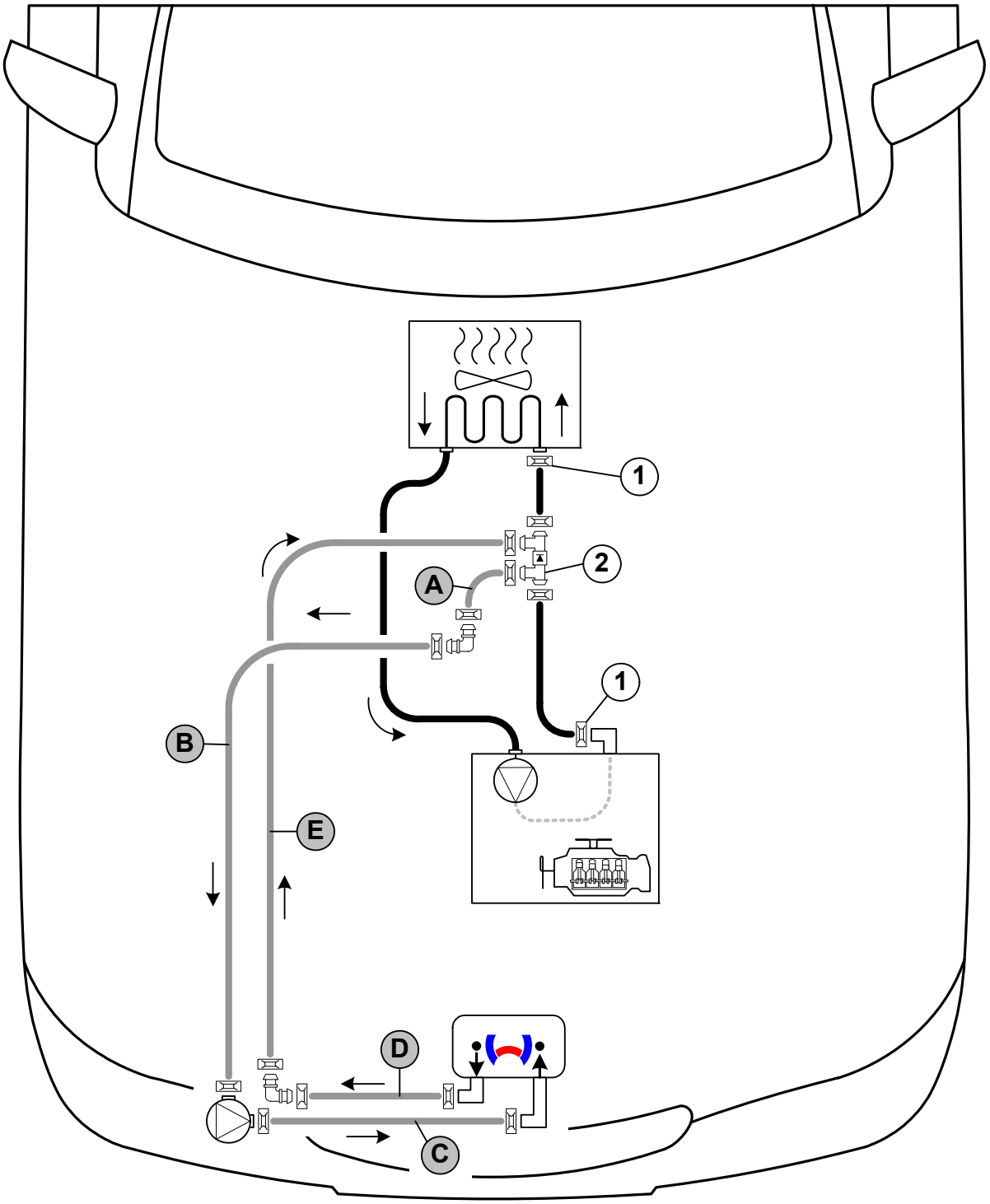
Connecting metering pump

Coolant Circuit for 2.0 MIVEC

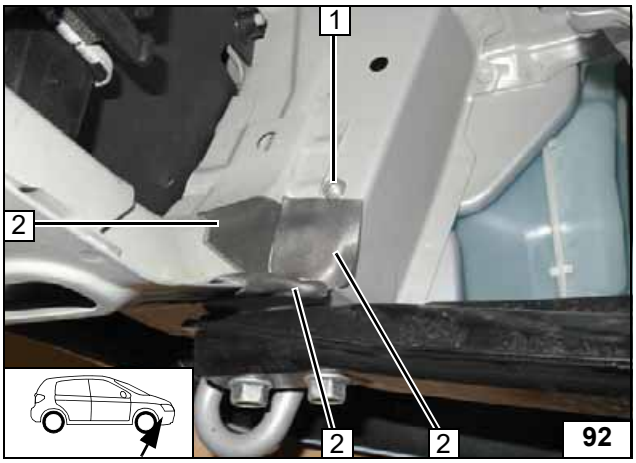
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

The connection should be modelled on a ‘parallel’ circuit and based on the following diagram:

Hose routing diagram



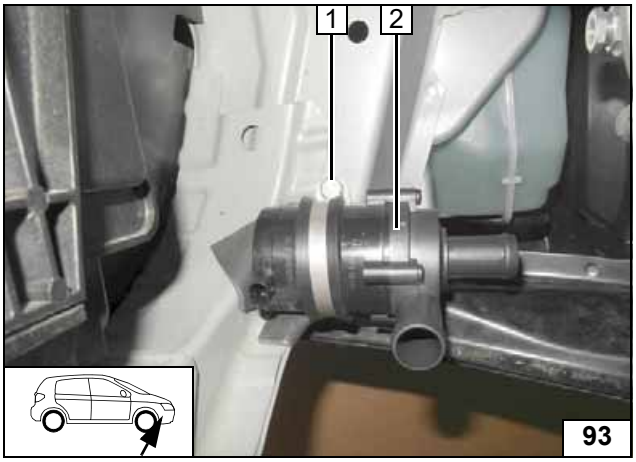
All spring clips without a specific designation = Ø25 All connecting pipes = Ø18x18
1 = Original vehicle spring clip .
2 = Non return valve .



Split insulation strip **2** into three equal long parts and affix them as shown.

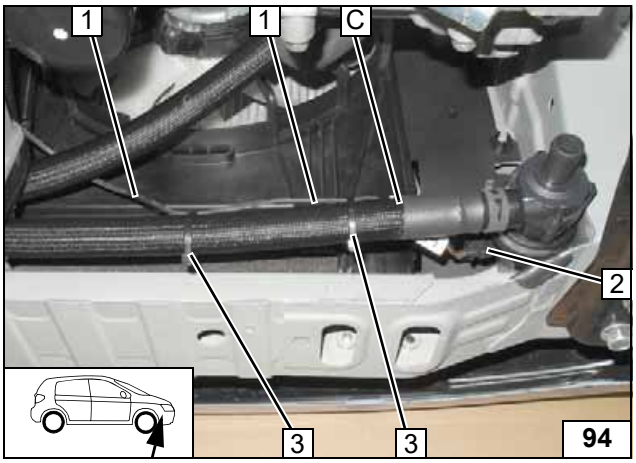
1 Rivet nut, existing hole

Installing rivet nut



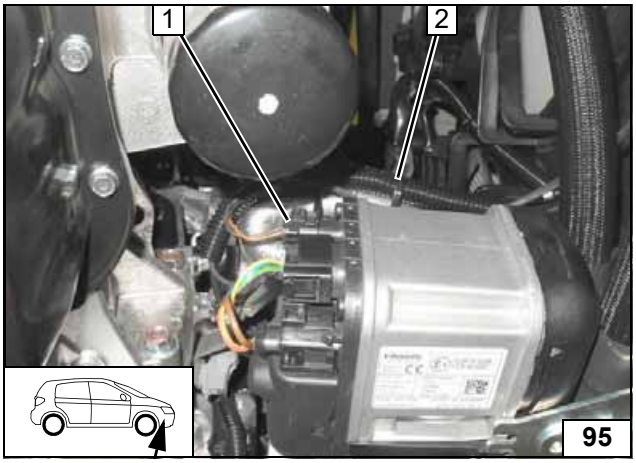
1 M6x20 bolt, spring lock washer, Ø48 rubber-coated p-clamp
2 Circulating pump

Installing circulating pump



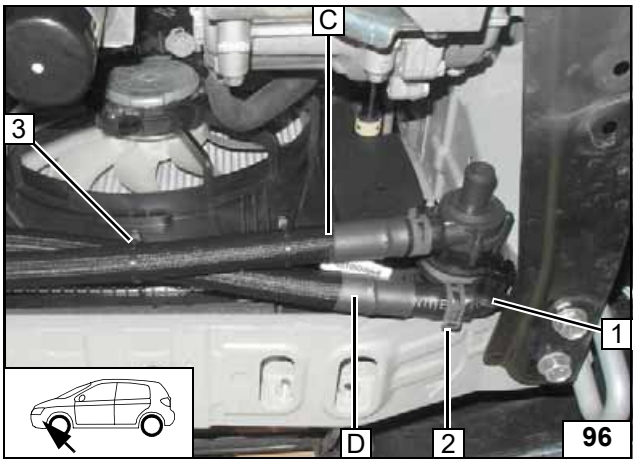
1 Circulating pump wiring harness
2 Connector of circulating pump wiring harness
3 Cable tie

Mounting wiring harness of circulating pump and hose C



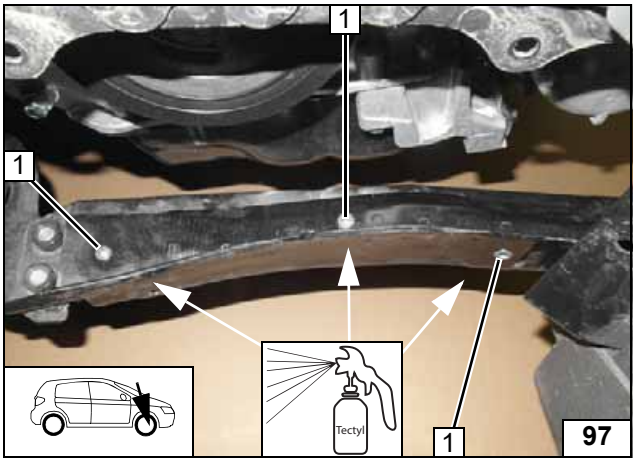
1 Connector of circulating pump wiring harness
2 Cable tie

Installing wiring harness of circulating pump



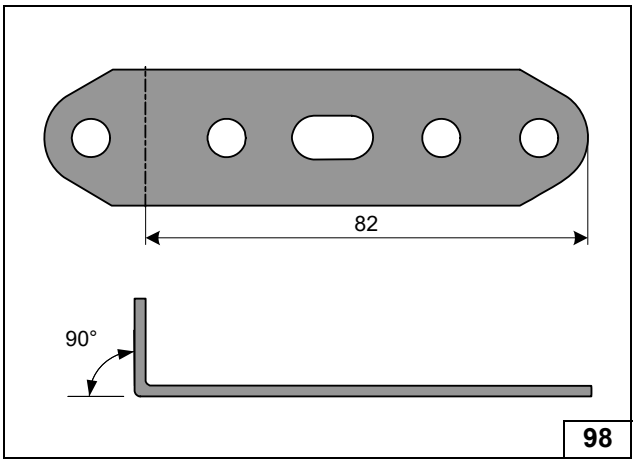
1 90°, Ø18x18 connecting pipe
2 Ø25 spring clip
3 Cable tie

Positioning / premounting hose C

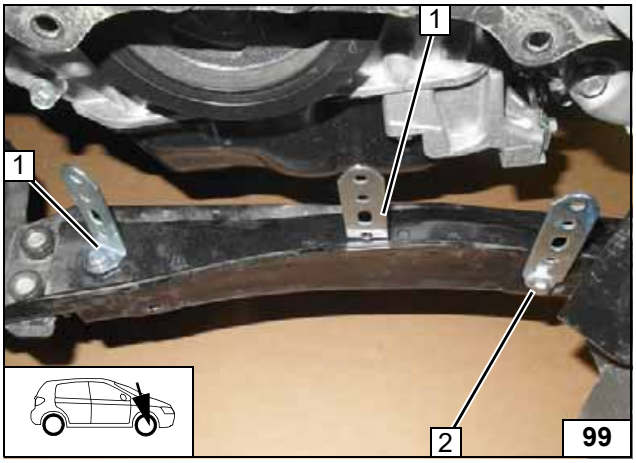


1 Drill out original vehicle hole to Ø9.1, rivet nut

Installing rivet nut

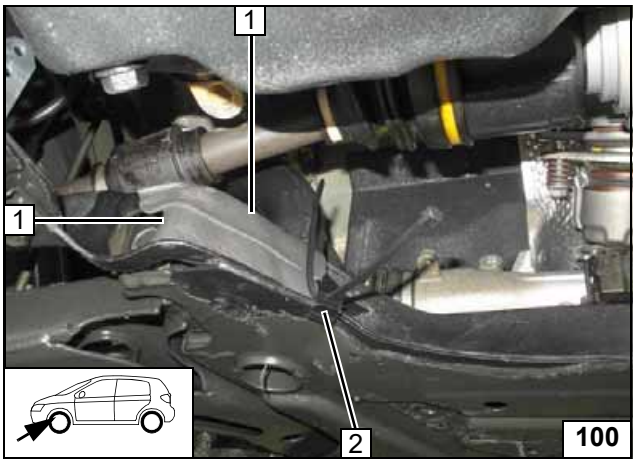


Bending 2 perforated brackets



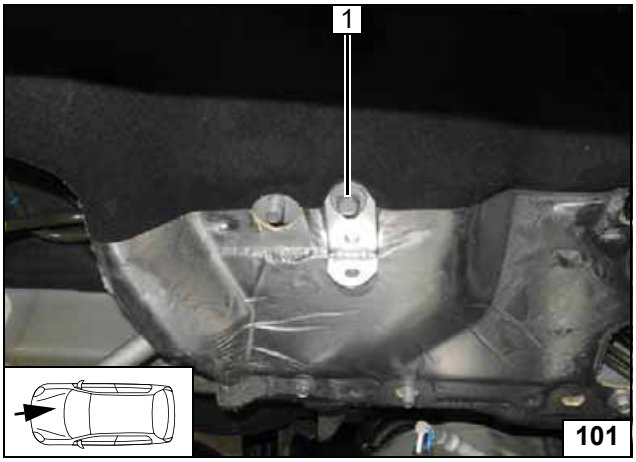
1 M6x20 bolt, spring lock washer, bent perforated bracket
2 M6x20 bolt, spring lock washer, large diameter washer, perforated bracket

Installing perforated brackets



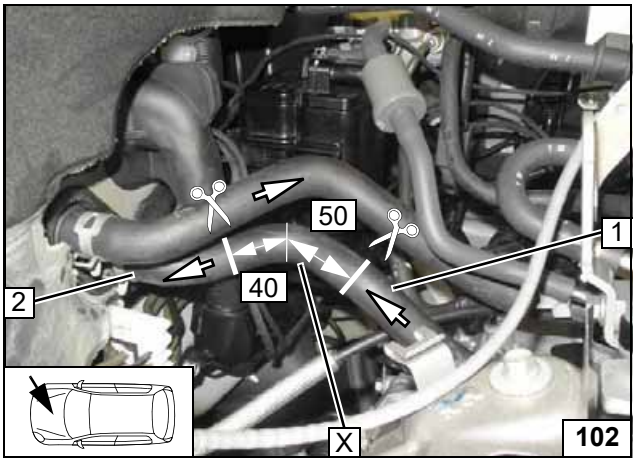
1 Insulation strip
2 Edge clip cable tie

Installing edge clip cable tie and insulation strip



1 Original vehicle bolt, angle bracket

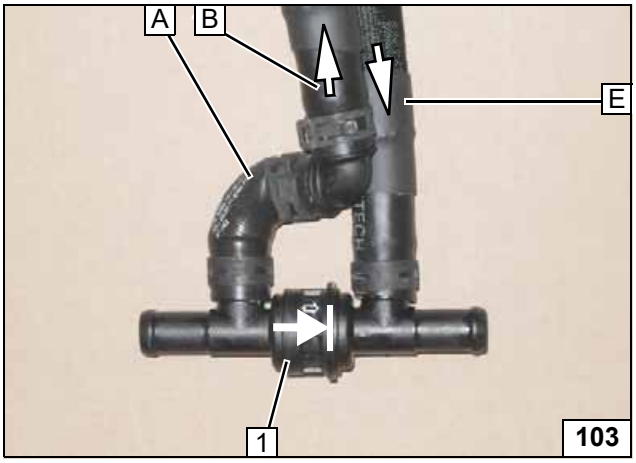
Installing angle bracket



1 Engine outlet hose section
2 Heat exchanger inlet hose section

X =

Cutting point



Mark hoses **B** and **E** with direction arrows.

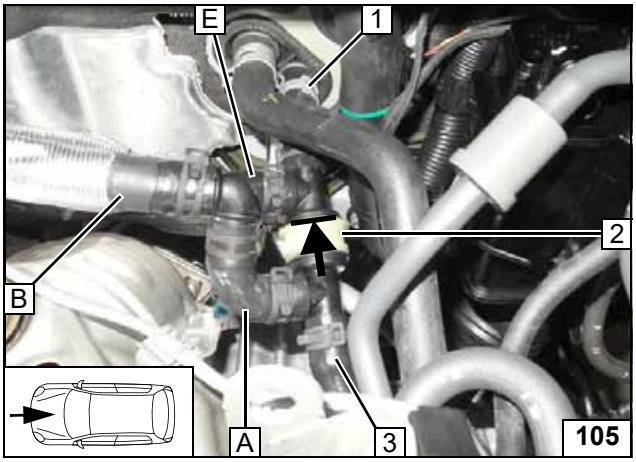
1 Non return valve (observe flow direction.)

Premounting non return valve

Cut 450 long section from heat protection hose 2

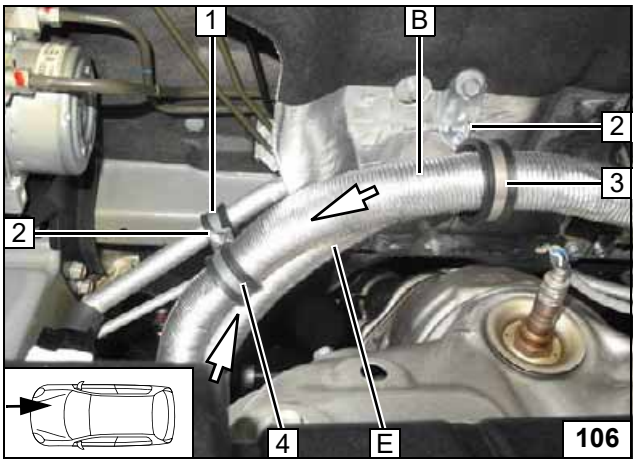
1 450 heat protection hose

Installing heat protection hose



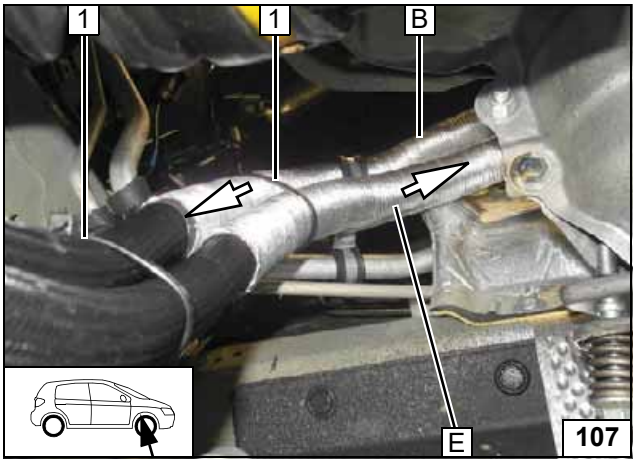
1 Heat exchanger inlet hose section
2 Premounted non return valve
3 Engine outlet hose section

Installing non return valve



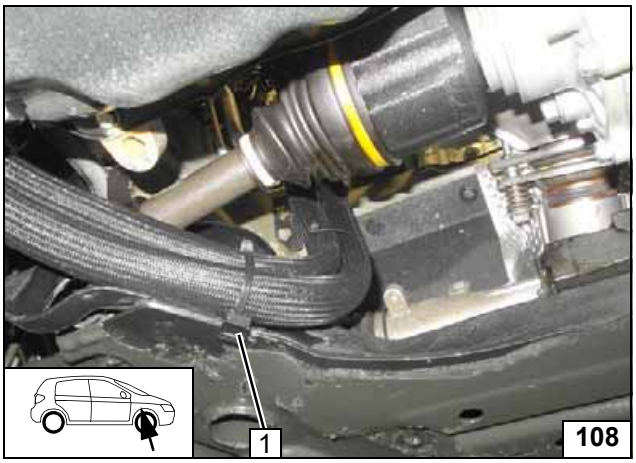
1 Ø18 rubber-coated p-clamp
2 M6x20 bolt, flanged nut
3 Ø48 rubber-coated p-clamp
4 Ø29 rubber-coated p-clamp

Routing in engine compartment



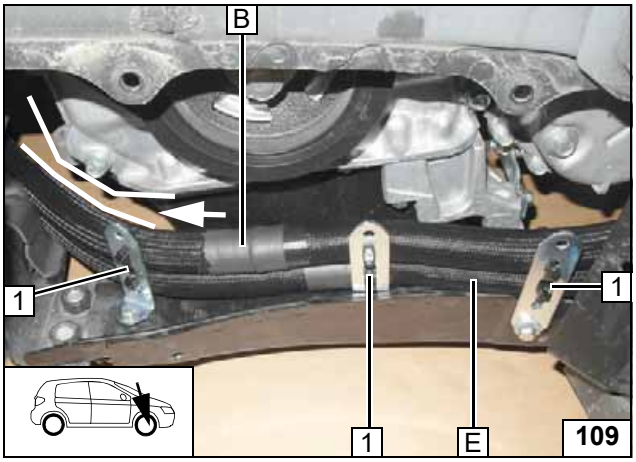
1 Cable tie

Routing in engine compartment

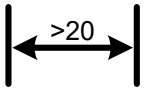


1 Close edge clip cable tie

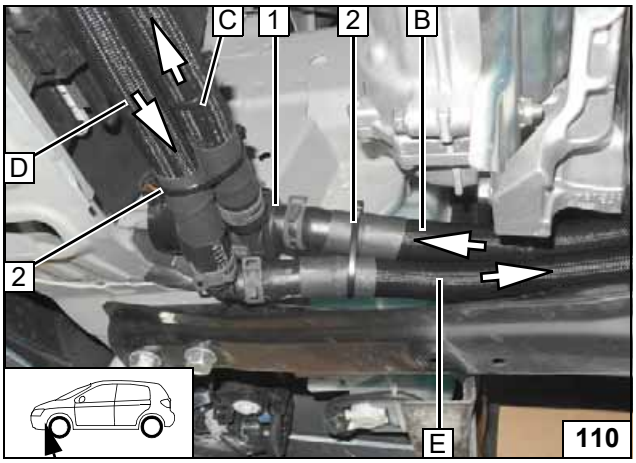
Routing in engine compartment



1 Cable tie on premounted perforated brackets



Fastening hoses, checking distance to engine



1 Circulating pump
2 Cable tie

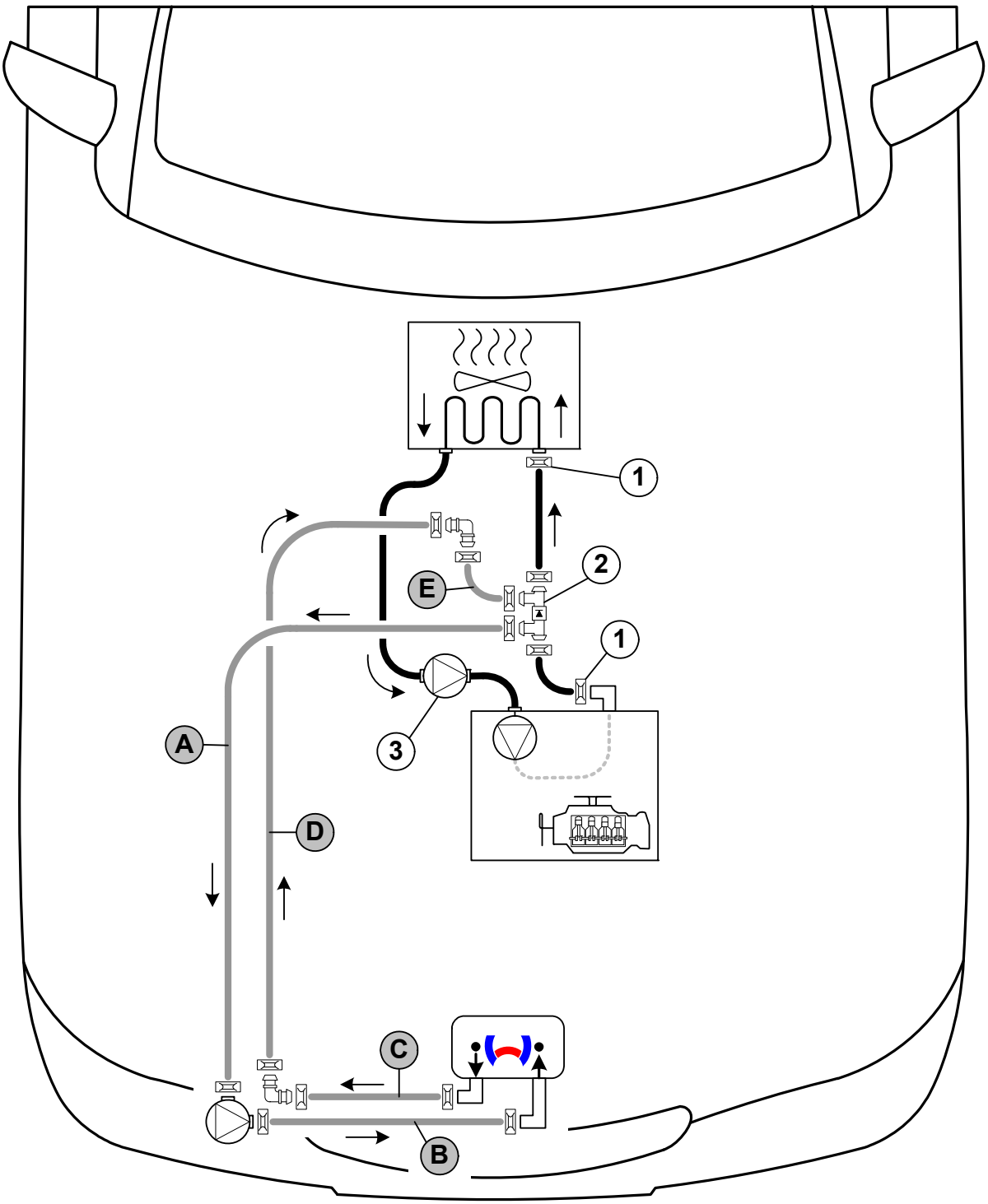
Connecting circulating pump

Coolant Circuit for 2.0 / 2.4 MIVEC PHEV

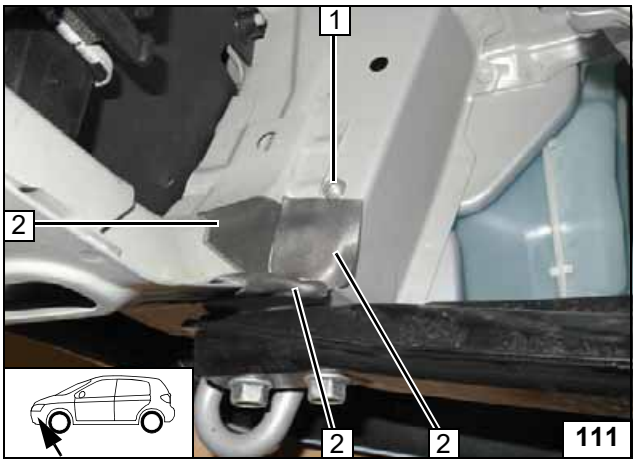
Any coolant running off should be collected in an appropriate container. Route hoses kink-free. Unless specified otherwise, always fasten using cable ties. Position clamps so that other hoses cannot be damaged. The heater must be filled with coolant when installing the hoses.

The connection should be modelled on a ‘parallel’ circuit and based on the following diagram:

Hose routing diagram



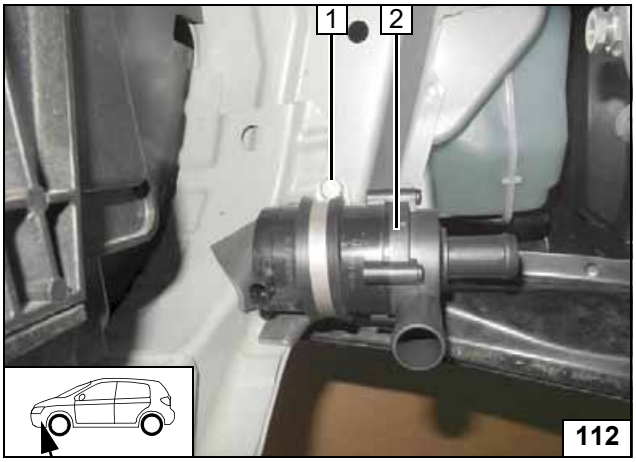
All spring clips without a specific designation = Ø25 All connecting pipes = Ø18x18
1 = Original vehicle spring clip .
2 = Non return valve . **3** = Original vehicle electrical circulating pump.



Split insulation strip **2** into three equal long parts and affix them as shown.

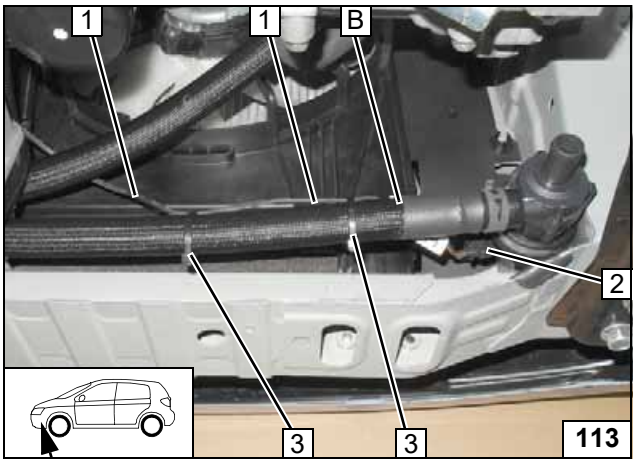
1 Rivet nut, existing hole

Installing rivet nut



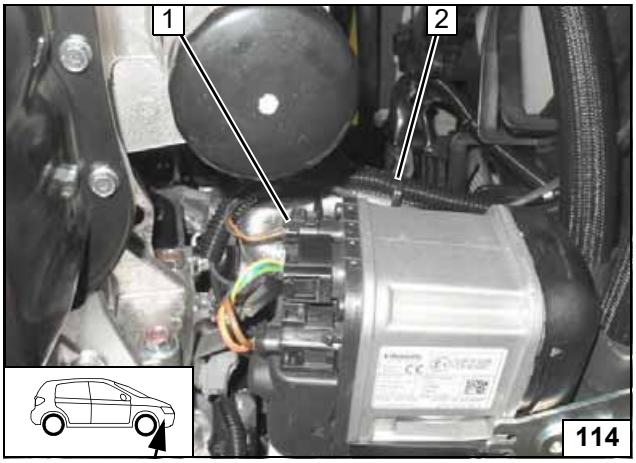
1 M6x20 bolt, spring lock washer, Ø48 rubber-coated p-clamp
2 Circulating pump

Installing circulating pump



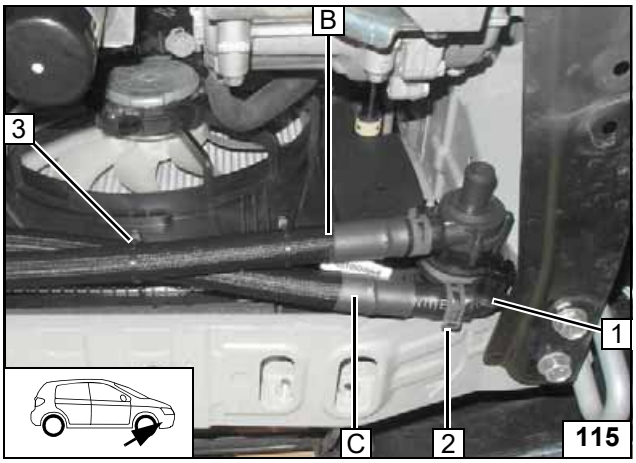
1 Circulating pump wiring harness
2 Connector of circulating pump wiring harness
3 Cable tie

Installing wiring harness of circulating pump and hose B



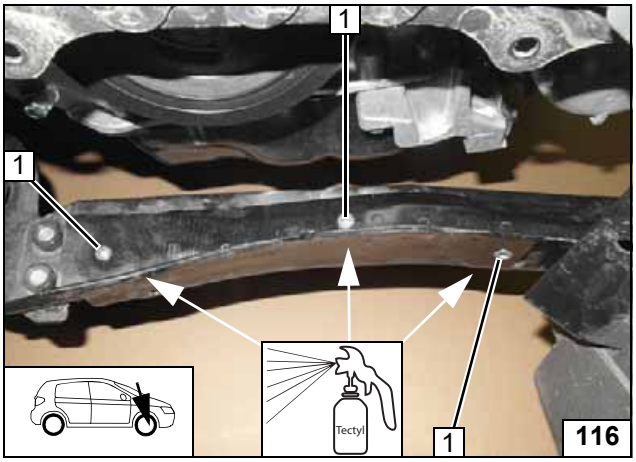
1 Connector of circulating pump wiring harness
2 Cable tie

Installing wiring harness of circulating pump



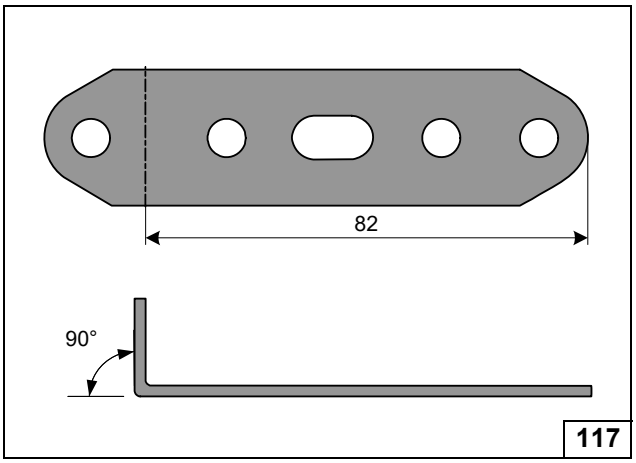
1 90°, Ø18x18 connecting pipe
2 Ø25 spring clip
3 Cable tie

Positioning / premounting hose C

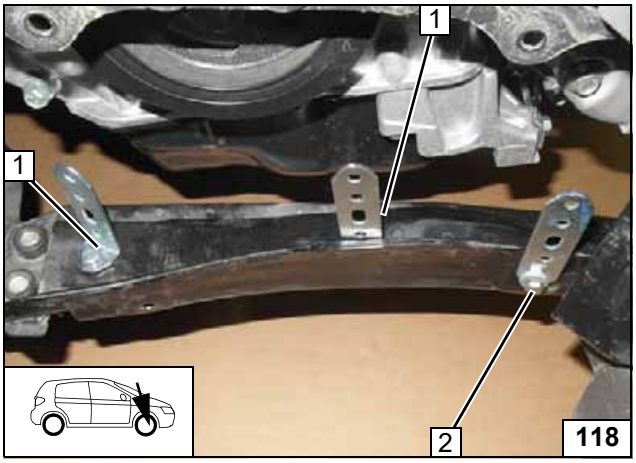


1 Drill out original vehicle hole to Ø9.1, rivet nut

Installing rivet nut

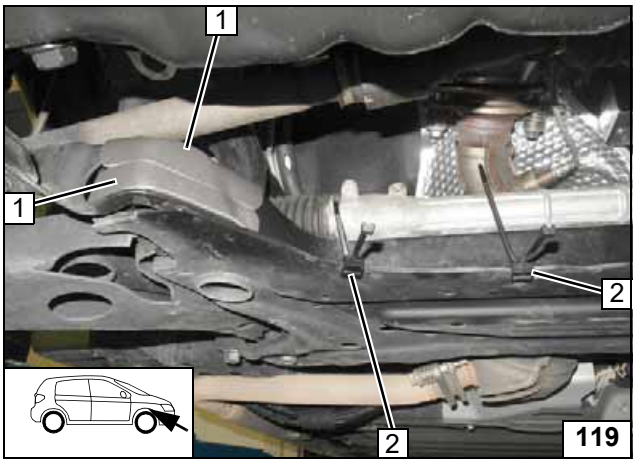


Bending 2 perforated brackets



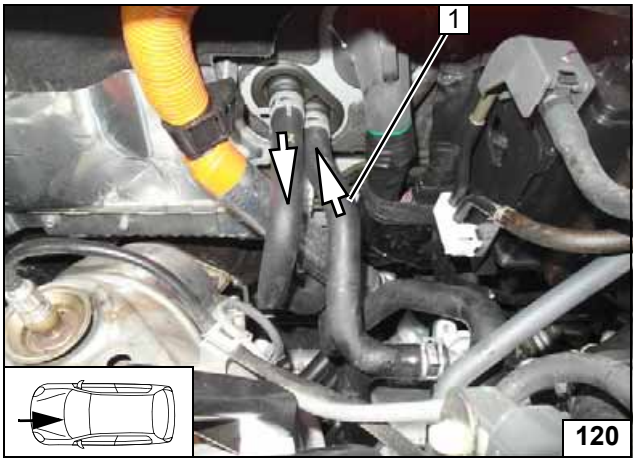
1 M6x20 bolt, spring lock washer, bent perforated bracket
2 M6x20 bolt, spring lock washer, large diameter washer, perforated bracket

Installing perforated brackets



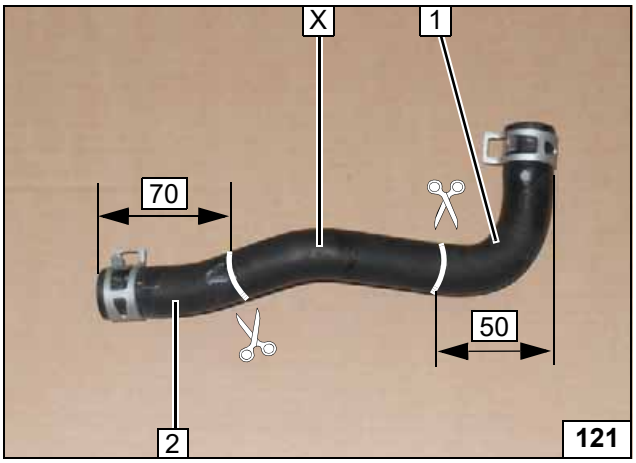
1 Insulation strip
2 Edge clip cable tie

Installing edge clip cable tie and insulation strip



Remove hose of engine outlet / heat exchanger inlet **1**. Spring clips will be reused!

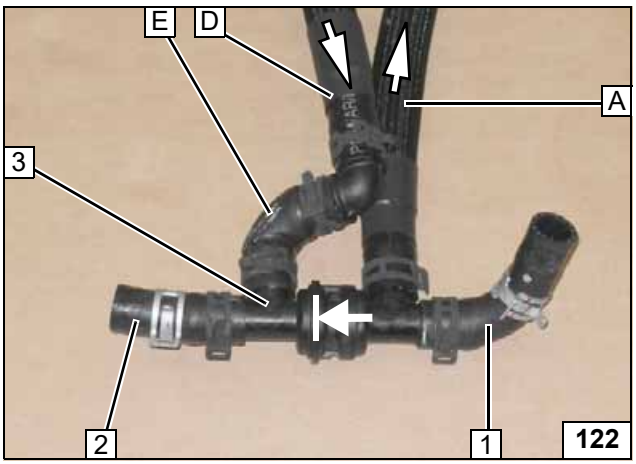
Cutting point



1 Engine outlet hose section
2 Heat exchanger inlet hose section

X =

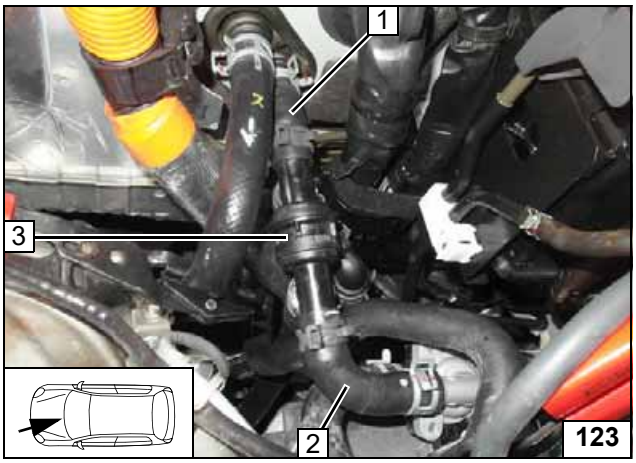
Cutting hose of engine outlet / heat exchanger inlet to size



Mark hoses **A** and **D** with direction arrows.

1 Engine outlet hose section
2 Heat exchanger inlet hose section
3 Non return valve (observe flow direction.)

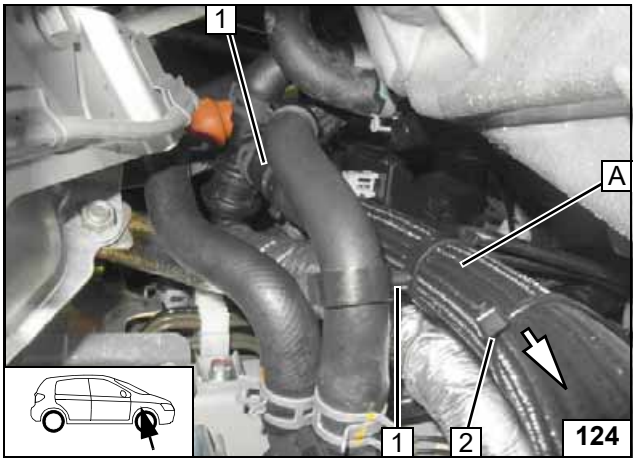
Premounting non return valve



Route hoses **A** and **D** downwards.

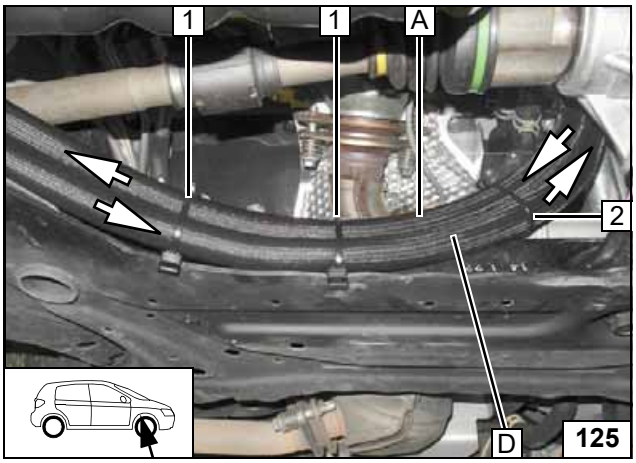
1 Heat exchanger inlet hose section
2 Engine outlet hose section
3 Premounted non return valve

Installing non return valve



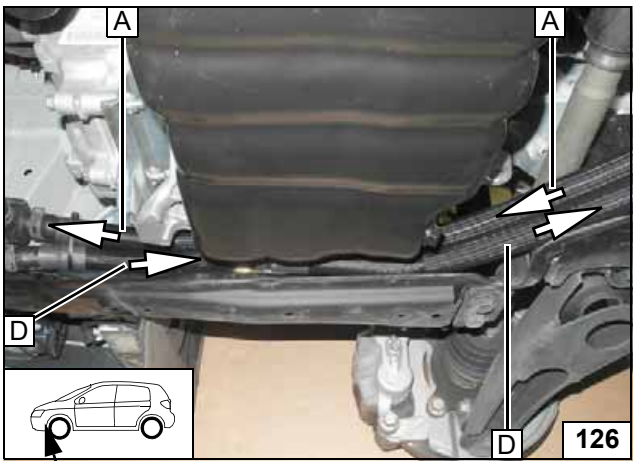
1 25x25 hose bracket between hose **A** and original vehicle water hose
2 Cable tie around hoses **A** and **D** (hidden)

Routing in engine compartment



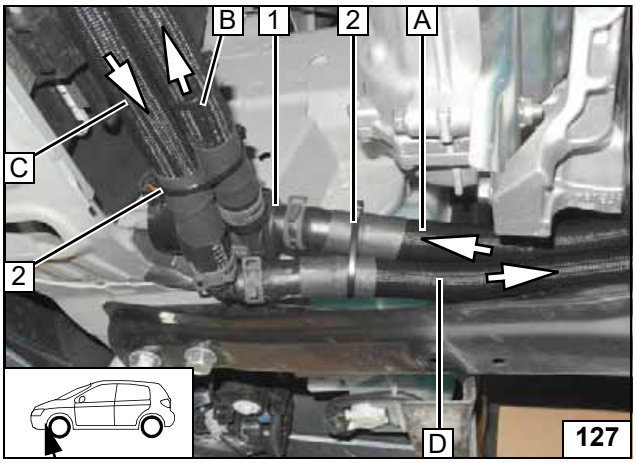
1 Close edge clip cable tie
2 Cable tie

Routing in engine compartment



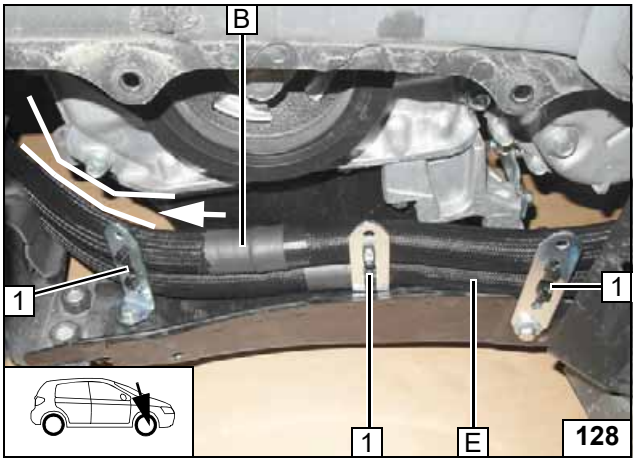
Hoses **A** and **D** will be fastened later.

Routing in engine compartment

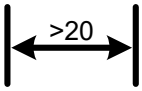


1 Circulating pump
2 Cable tie

Circulating pump connection / connecting hoses D and C



1 Cable tie on premounted perforated brackets



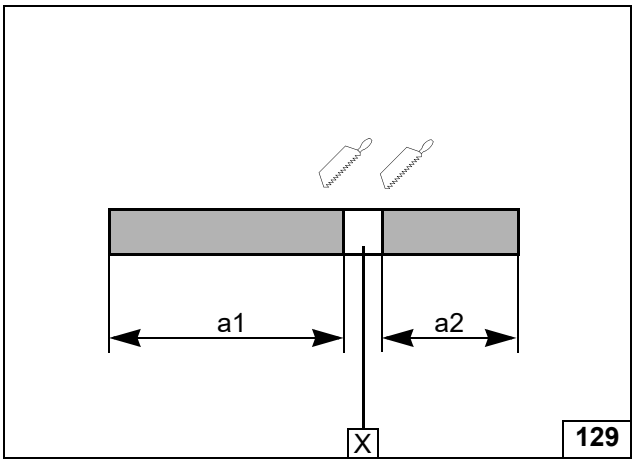
Fastening hoses, checking distance to engine

Exhaust Gas

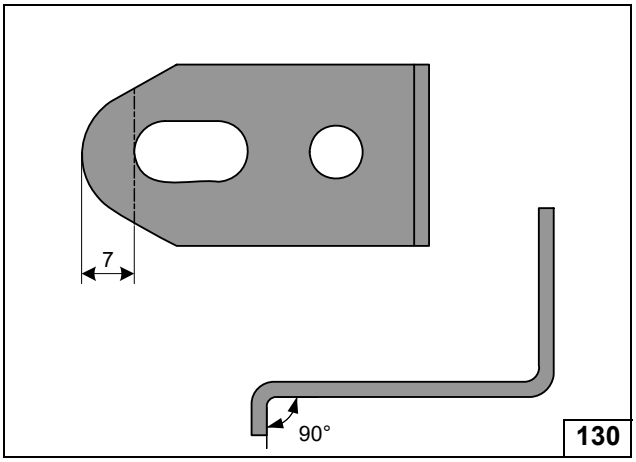
Vehicles with manual transmission

a1 = 250
a2 = 110

X =



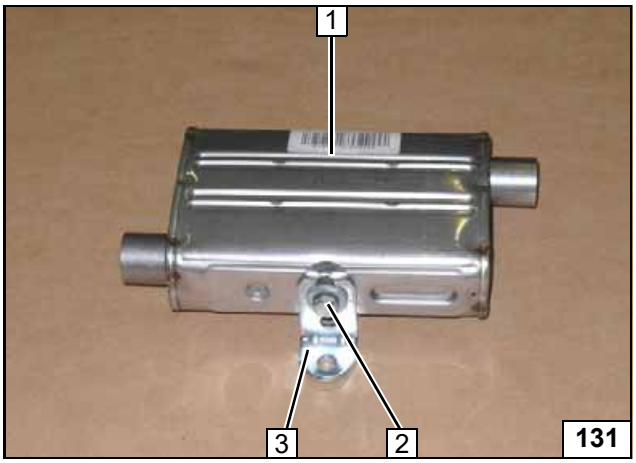
129



130

Preparing exhaust pipe

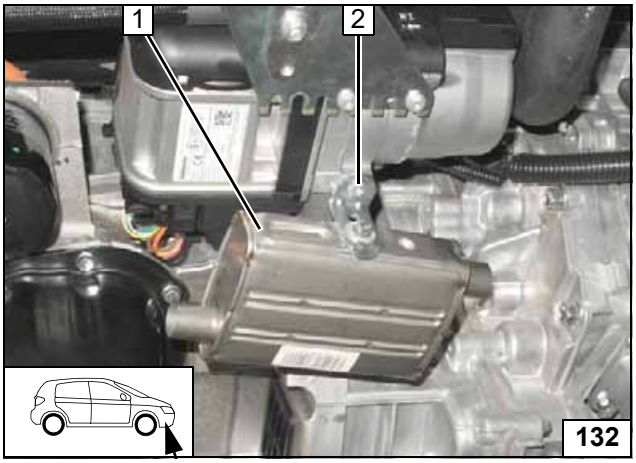
Bending angle bracket



131

1 Silencer
2 M6x16 bolt, spring lock washer, large diameter washer
3 Angle bracket

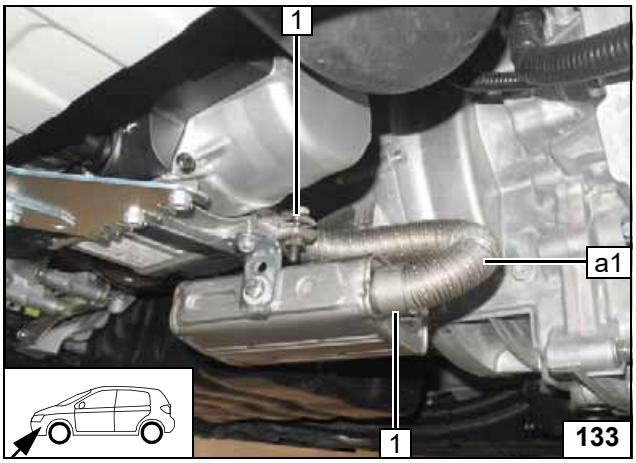
Premounting silencer



132

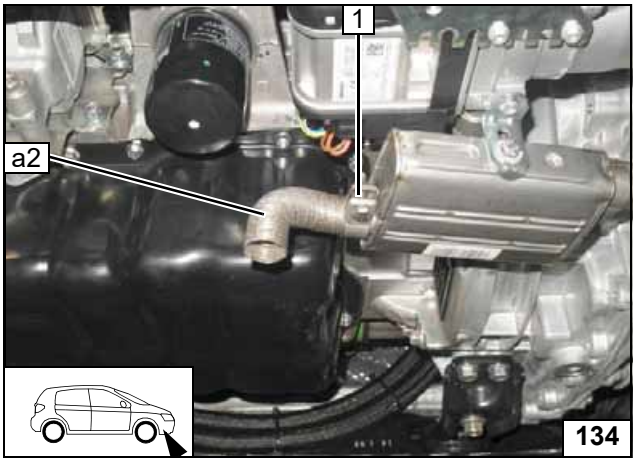
1 Silencer
2 5x13 self-tapping bolt

Installing silencer



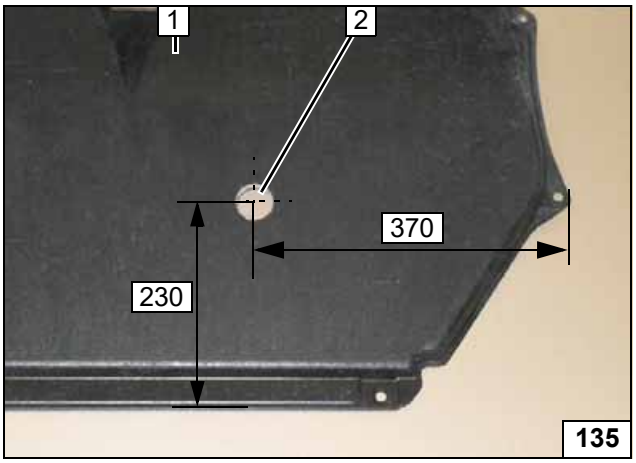
1 Hose clamp

Installing exhaust pipe a1



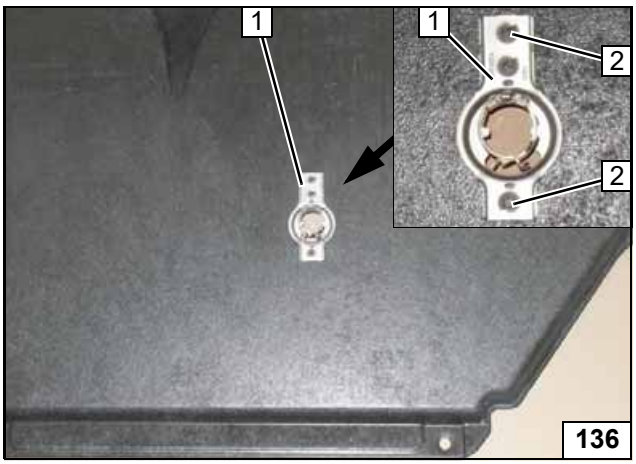
1 Hose clamp

Installing exhaust pipe a2



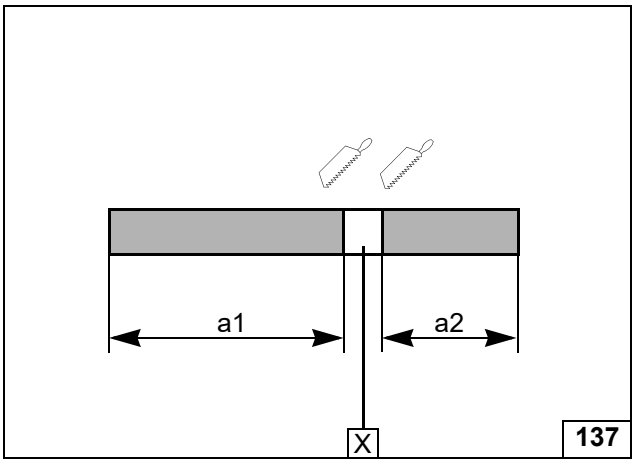
1 Underride protection
2 Hole (as per work step 1 of the installation instructions)

Hole in underride protection



Position exhaust end fastener **1** as per work step 3 of the installation instructions and copy hole pattern **2** [2x].

Copying hole pattern

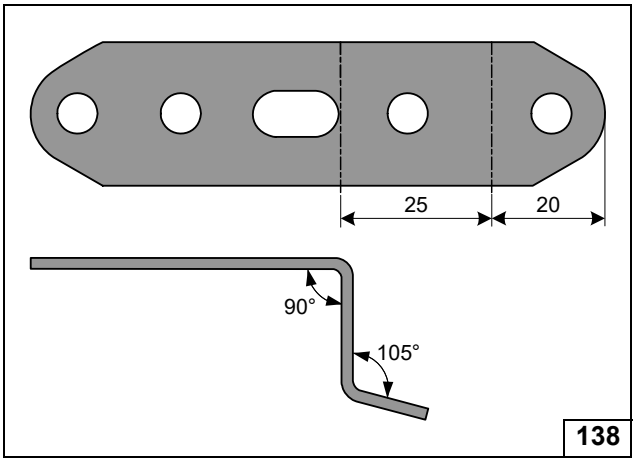


Vehicles with automatic transmission

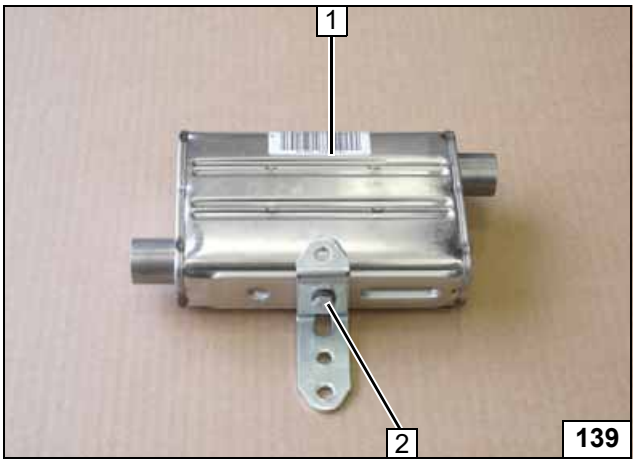
a1 = 250
a2 = 110

X =

Preparing exhaust pipe

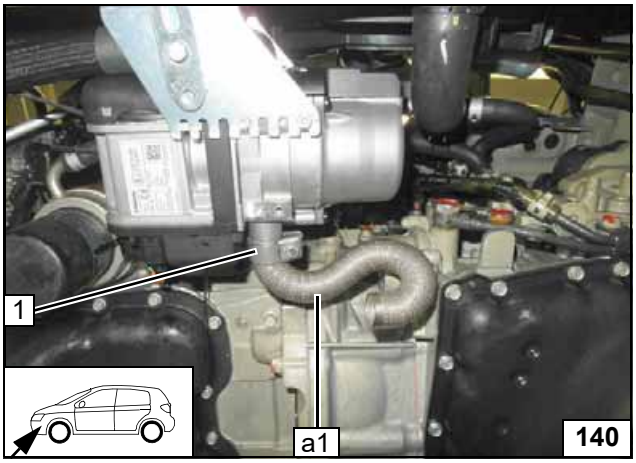


Bending perforated bracket



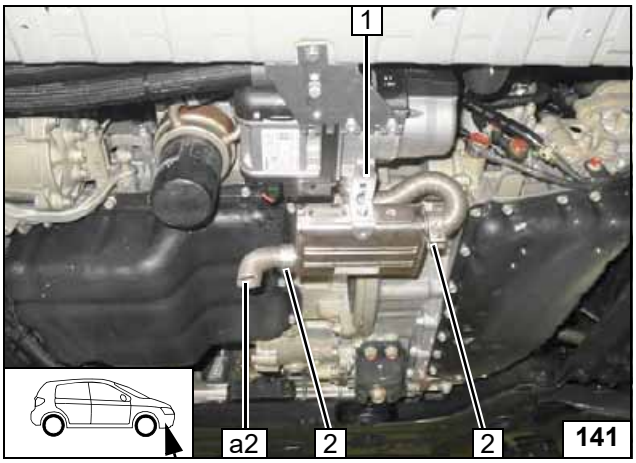
1 Silencer
2 M6x16 bolt, spring lock washer, large diameter washer

Premounting silencer



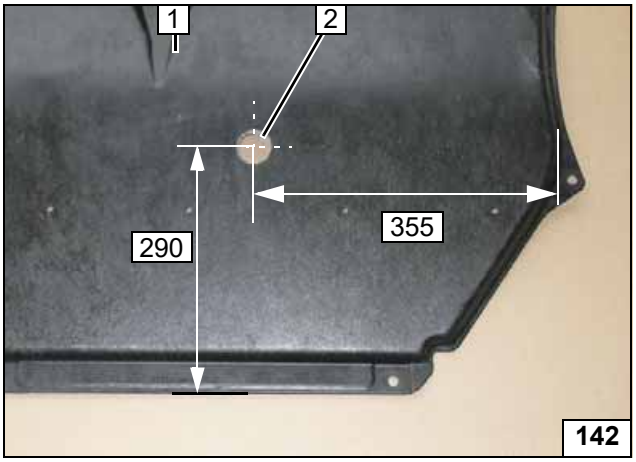
1 Hose clamp

Installing exhaust pipe a1



1 5x13 self-tapping bolt
2 Hose clamp

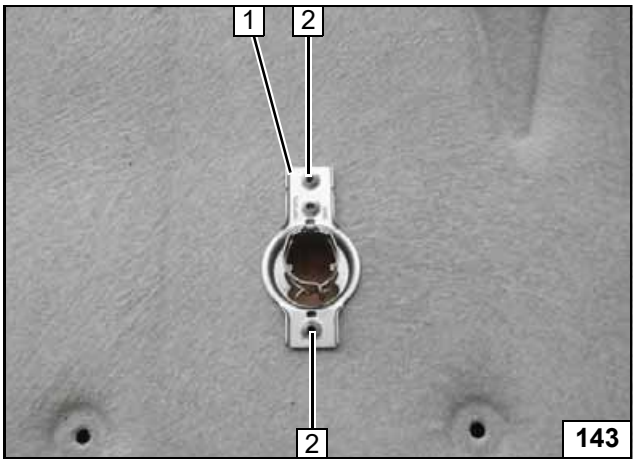
Installing silencer



The figure shows the underride protection without an additional retaining strut!

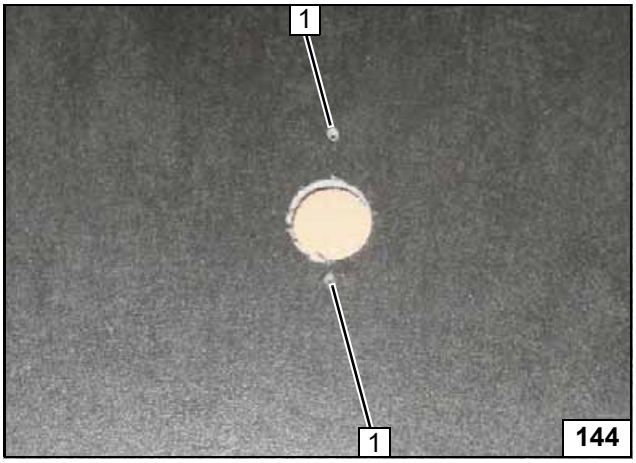
1 Underride protection
2 Hole (as per work step 1 of the installation instructions)

Hole in underride protection



Position exhaust end fastener **1** as per work step 3 of the installation instructions and copy hole pattern **2**.

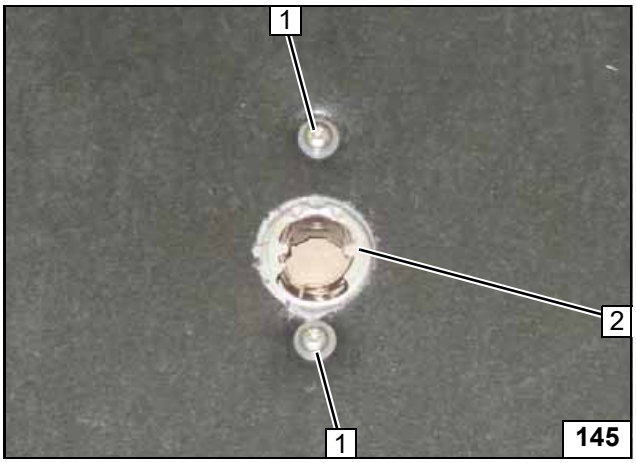
Copying hole pattern



All vehicles

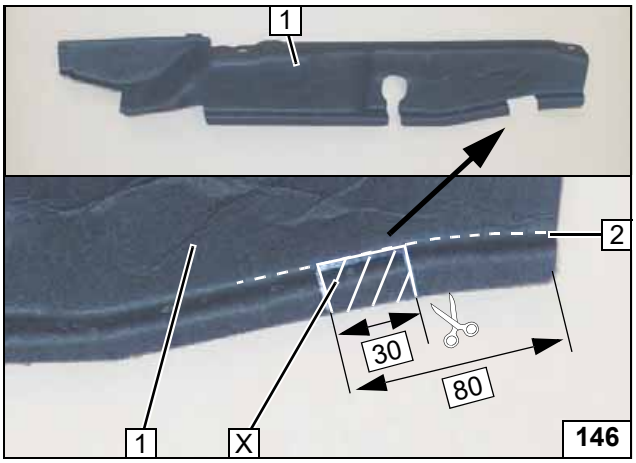
Hole **1** as per work step 4 of the installation instructions.

Holes in underride protection



1 5x13 self-tapping screw, large diameter washer, as per work step 5 of the installation instructions
2 Exhaust end fastener

Installing exhaust end fastener

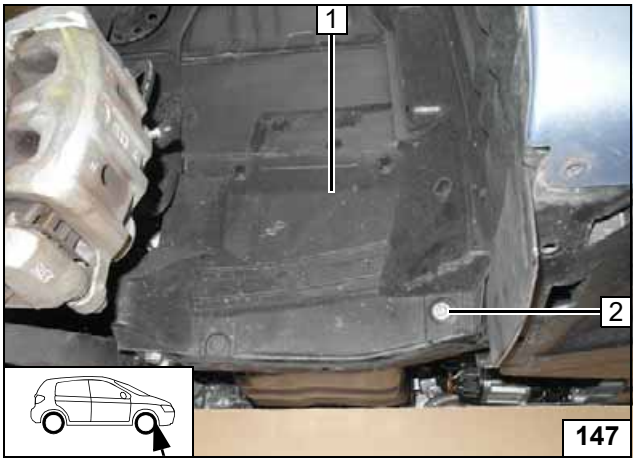


Final Work

1 Wheel arch liner (if available)
2 Existing ridge

X =

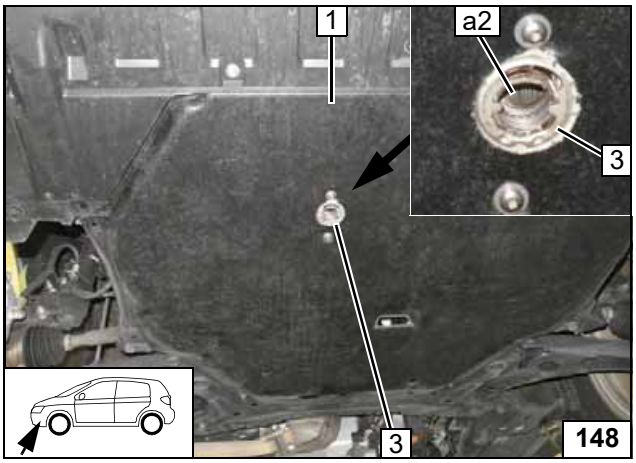
Adapting wheel arch liner



Detach M6x20 bolt **2** from mounted perforated bracket and install together with engine cover.
Ensure sufficient distance between coolant hoses in the back and adjacent components; correct if necessary.

1 Lateral engine cover on the right side

Installing lateral engine cover on the right side



Work step 6 of the installation instructions
Install underride protection **1**.
Install exhaust pipe **a2** as per work steps 7 - 8 of the installation instructions, insert the exhaust pipe into exhaust end fastener **3** as far as possible!

Installing exhaust pipe a2

Reassemble the components in reverse order. Check all hoses, clamps and all electrical connections for firm seating. Insulate and tie back loose lines.
Only use manufacturer-approved coolant. Spray the heater components with anti-corrosion wax (Tectyl 100K).

Activation of the hybrid system
The hybrid system is to be re-activated prior to connecting the 12V vehicle battery.

- **Connect the battery.**
- **Fill and bleed the coolant circuit according to the vehicle manufacturer's instructions.**
- **Program MultiControl CAR, teach Telestart transmitter.**
- **Make settings on the A/C control panel according to the 'operating instructions'.**
- **Place the 'Switch off parking heater before refuelling' caution label near the filler point.**
- **For initial start-up and function check, please see installation instructions.**
-

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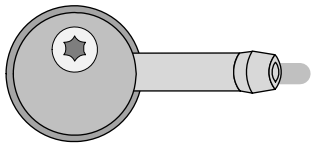
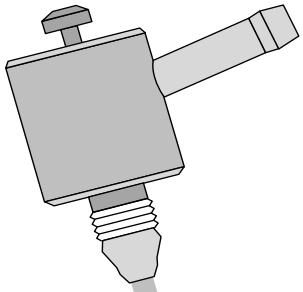
82199 Gilching
Germany
Internet: www.webasto.com
Technical Extranet:
http://dealers.webasto.com

FuelFix Template

Top view





100mm

Scale 1:1

Compare size of printout with dimension lines.
Maximum permitted tolerance 2%.

Set the printer settings to ‘no margin’ or ‘minimise margins’ and 100% of the normal size.

100mm

0

Operating Instructions for 2.0 MIVEC

Please remove page and add to the vehicle operating instructions.

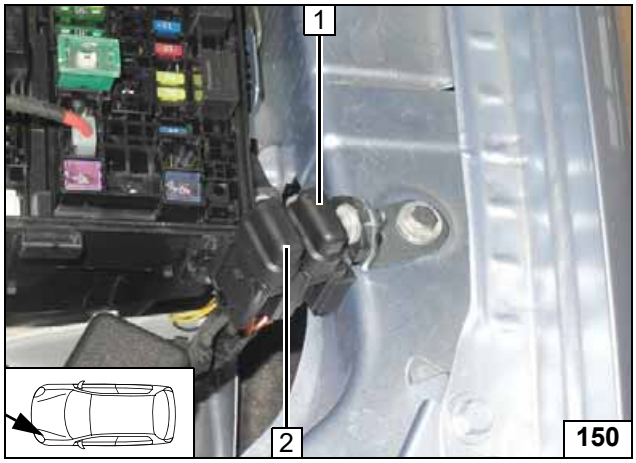
Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Before parking the vehicle, make the following recommended settings on the A/C control panel:

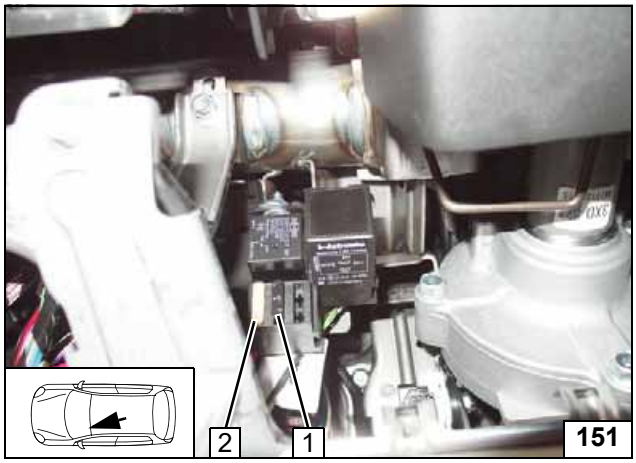
1 Set temperature on both sides to '29°C'
2 Air outlet to windscreen

A/C control panel



1 30A main fuse F2 of passenger compartment
2 20A heater fuse F1

Engine compartment fuses



1 1A control element fuse F3
2 25A fan fuse F4

Passenger compartment fuses

Webasto
Feel the Drive

Operating Instructions for 2.0 / 2.4 MIVEC PHEV

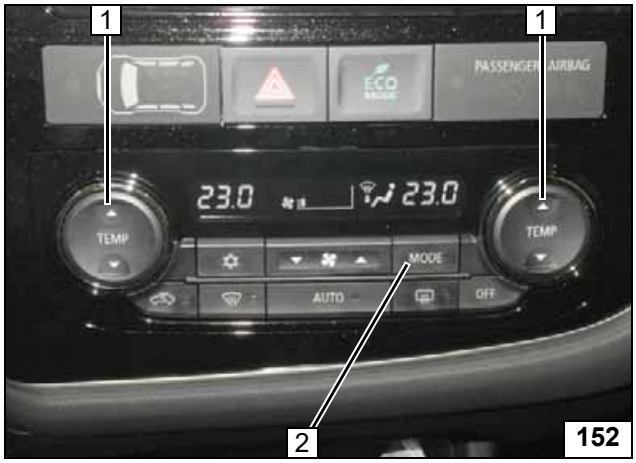
Please remove page and add to the vehicle operating instructions.

Note:
We recommend matching the heating time to the driving time.
Heating time = driving time
Example:
For a driving time of approx. 20 min. (in one direction), we recommend not exceeding a switch-on time of 20 min.

Passenger compartment monitoring, if installed, must be deactivated in addition to the vehicle settings for the heating operation.
For instructions on deactivation, please refer to the operating instructions of the vehicle.

Note:
The Webasto heater can be used as parking heater while driving so that the vehicle can be driven in EV mode only, even at outside temperatures below 15°C, without starting the combustion engine.

Before parking the vehicle, make the following recommended settings on the A/C control panel:



1 Set temperature on both sides to approx. ‘23°C’
2 Air outlet to windscreen and footwell

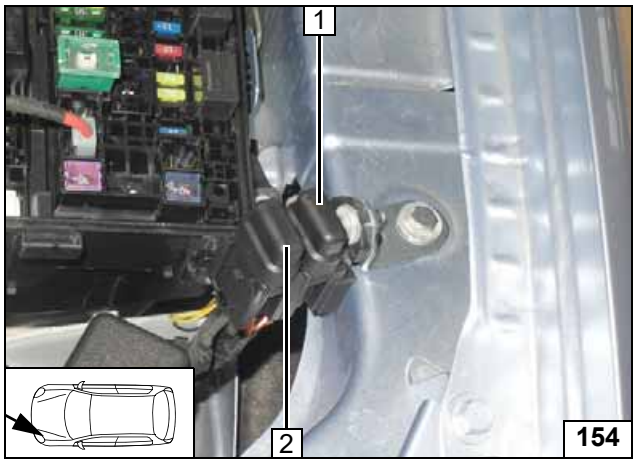
Set the display to "OFF" (see next figure), to prevent the combustion engine from starting at the beginning of the drive.

A/C control panel

Note: The air outlet distribution also functions in the ‘OFF’ position.

1 Set display to ‘OFF’

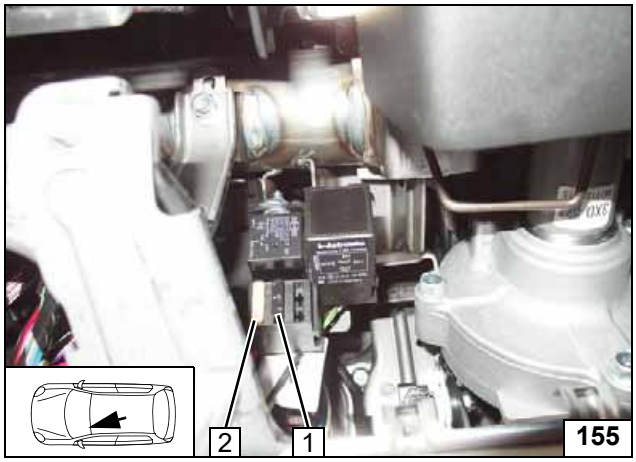
A/C control panel



The figure shows a vehicle without wheel arch liner !

1 30A main fuse F2 of passenger compartment
2 20A heater fuse F1

Engine compartment fuses



1 1A control element fuse F3
2 25A fan fuse F4

Passenger compartment fuses